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Original Articles.

SURGICAL ANATOMY OF HERNIA.*

OBSERVATIONS THEREON, WITH RESULTS OF FIFTY DISSECTIONS.

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In the course of numerous operations for the relief of oblique inguinal hernia, Dr. Alexander Hugh Ferguson of this city has observed: 1, that with but few exceptions there was a marked deficiency in the origin of the internal oblique and the transversalis muscles from Poupart's ligament; 2, that these muscles arising only from the outer portion of Poupart's ligament, with their lower fibers deficient in number and strength, afforded but poor protection, if any, to the internal abdominal ring; 3, that a strong barrier being thus removed, the descent of the hernia through the internal ring and downward along the inguinal canal was greatly facilitated.

Nearly every writer on hernia makes the statement that the hernia in its descent pushes the arched fibers of the internal oblique and the transversalis muscles out of its way, displacing them outward and upward. Dr. Ferguson, while granting that the muscles are to a greater or lesser degree thus displaced, asserts that this displacement would not be possible, providing always that no congenital defect in the internal ring existed, were there not an abnormally short attachment of the muscles to Poupart's ligament; that the fact that the internal oblique, by reason of this deficiency in the origin of the muscle fibers and their consequent abnormal upward arching, fails to adequately cover and protect the internal ring and assist in the support of the abdominal viscera at that point is not altogether an effect of hernia, but rather a cause. He further asserts that in a fair percentage of cases of indirect hernia, a congenital—not an acquired—deficiency in the origin of the internal oblique had been present, and had formed in the individual a predisposition to the hernia, and that the hernia had been then occasioned by the gradual "giving way" of the peritoneum and of the transversalis fascia, or by a more immediate "exciting" cause.

Arguing upon this hypothesis. Dr. Ferguson concludes that in an individual of well-developed internal oblique and transversalis muscles having a firm, normal attachment well down along Poupart's ligament, these muscles—especially the internal oblique—by closely covering and protecting the internal ring, offer strong resistance to pressure from within, and thus render the liability to hernia very small.

The lower fibers of the internal oblique, leaving Poupart's ligament and passing inward to the conjoined tendon, normally form, with the ligament, an acute angle. This we have taken the liberty to call the "Ferguson angle." The lowest point of the muscular origin in its relation—external or internal—to the internal ring, considered together with the degree of the Ferguson angle, goes far to show the relative strength or weakness of the resistance offered by the muscle at the internal ring, and hence should not be overlooked in the study of the causation of hernia.

Acting upon Dr. Ferguson's suggestion, dissections were undertaken with a view of determining in the normal cadaver: 1, the average length of the attachment of the internal oblique muscle to Poupart's ligament; 2, the position of the external and internal abdominal rings; 3, the length of the inguinal canal; 4, to estimate the amount of protection afforded the internal ring, and, 5, to note other points of interest in this connection which might come under observation in the course of the work. There were in all 50 cadavers dissected, of which 27 were of adult males and 9 of adult females, whose ages it was impossible to obtain, 1 of male and 2 of female children with given ages, and 11 of fetuses of both sexes, with ages varying from seven months to full term. In regard to the latter, they were either still-born, or had died shortly after birth, for in all cases the divided funis was present.

In each dissection the subject was placed flatly upon the table, with the thighs in a line with the long axis of the body, and without rotation outward or inward. The integument and superficial structures were reflected from the inguinal region, and the external oblique aponeurosis exposed. The anterior superior iliac spine and the spine of the pubes were then accurately located, and the distance between them noted; this distance is given in the tables as the length of Poupart's ligament. The error induced by the downward curve of the ligament, present in a majority of the subjects, was so slight, and so largely dependent upon the position of the thigh, that it was not considered necessary to note any difference. The intercolumnar fibers and fasciæ were then removed, clearly defining the pillars of the external ring, and measurements were taken of the distance between the pubic spine and the outer angle of the ring, i. e., the most external point of complete separation of the fibers of the external oblique aponeurosis. A superficial slit, or divergence, in the aponeurotic fibers is continued outward for a variable distance, and though the intercolumnar fibers are strong at this point, this may account, in part, for the ready enlargement of the ring in hernia. This partial separation was not, however, regarded as being a part of the true ring, and was not included in the measurement. The aponeurosis was then divided parallel to Poupart's ligament, and the lowest point of the internal oblique origin ascertained. To insure against possible mis-

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take, the lower border of the muscle passing from Poupart's ligament to the conjointed tendon was carefully exhibited, and the cremasteric fibers differentiated. The length of origin of the internal oblique given, then, is the distance between the anterior superior spine and the lowest point on Poupart's ligament, from which well-marked internal oblique fibers pass over to the conjoined tendon. The spermatic cord, or round ligament, was then followed upward along the inguinal canal to the internal ring, the fibers of the internal oblique being thus divided in the direction of the canal. The infundibuliform process of transversalis fascia was then removed, and the margins of the internal ring defined. A needle or probe was placed as exactly as possible in the center of the ring, and from the center the following measurements were taken: the distance to the anterior superior spine of the ilium; the distance to the spine of the pubes, and to Poupart's ligament. For the length of the canal the distance was taken between the center of the internal ring and the outer angle of the external aperture.

The average length of Poupart's ligament was found to be 11.2 cm. (four and three-eighths inches) in the male adult (25 subjects, dissections 40 and 43 not being counted in the averages), and 12.5 cm. (four and fifteen-sixteenths inches) in the female adult (9 subjects). The average distance of the apex of the external ring from the pubic spine was 2.1 cm. (thirteen-sixteenths inch) in the male, and in the female 1.57 cm. (five-eighths inch). These measurements present no points of particular interest or importance other than those given by obstetricians and anatomists regarding the greater width of the female pelvis, and the smaller size of the ring in woman than in man. In a majority of the male subjects, however, I found the length of the external ring to be less than an inch (2.5 cm.), the distance usually given, in several but half an inch (1.3 cm.), in one three-eighths of an inch (1 cm.). As shown by the tables, in these dissections the size of the female ring averaged a little less than three-fourths that of the male.

The average length of the origin of the internal oblique muscle in the male was found to be 8 cm. (three and one-eighth inches). Upon comparing this with the average length of Poupart's ligament, it will be seen that the muscular attachment averages a little more than two-thirds the length of the latter. Gray, Morris, and others state that the internal oblique takes origin from the outer half; Quain, that it arises "from the outer half or two-thirds of the deep surface of Poupart's ligament." The results obtained here do not bear out the text-book statements, the internal oblique being attached in a majority of the normal cadavers to rather more than the outer two-thirds of the ligament. This fact is important, bearing as it does directly upon Dr. Ferguson's assertion that the internal ring derives its greatest protection from the internal oblique muscle. For it is well known that the lower (innermost) fibers of the muscle are the weaker, therefore the longer the ligamentous origin, the farther the weak fibers pass below and internal to the internal ring, the greater is the protection afforded the ring by the strong outer muscular fibers which pass over it.

The average length of the origin of the internal oblique in the female (9.9 cm.), when compared with the average length of the female ligament, shows that the muscle arises, on the average, from the outer four-fifths (approximately) of the ligament, demonstrating that the length of muscular origin (outer four-fifths) is relatively greater than that of the male (outer two-thirds). The fact that the spermatic cord is larger than the round ligament may account, in part, for this difference; but I believe the true explanation to be that the processus funiculo-vaginalis (or the testicle) in its descent has carried with it some lower fibers of the internal oblique which ultimately become

Adults.	Length, Poupart's ligament; cm.	Distance, outer angle, ext. ring from pubic spine; cm.	Length, origin int. oblique along Poupart's lig. from ant. sup. spine; cm.	Distance, int. ring from pubic spine; cm.	Distance, int. ring from ant. sup. spine; cm.	Distance, int. ring above Poupart's lig.; cm.	Length inguinal canal; cm.
1 Male	11.4	3.2	7.9	5.7	6.	1.2	2.5
2 Male	10.1	1.2	7.6	4.1	6.3	1.6	2.9
3 Male	10.8	2.5	7.8	7.	5.	2.8	4.4
4 Male	11.4	2.2	9.2	5.7	6.3	1.9	3.5
5 Female	12.7	1.9	10.3	7.6	6.4	2.9	5.7
6 Male	10.7	2.3	8.2	6.3	5.4	2.2	4.1
7 Male	11.3	1.8	8.3	6.4	5.7	1.9	3.2
8 Male	10.2	2.5	7.3	5.7	5	1.9	3.4
9 Male	11.4	2.5	8.5	6.4	5.7	2.	3.8
10 Male	10.	1.3	8.2	6.3	4.4	2.	5.
11 Male	11.3	2.5	8.5	7.6	5.1	2.5	5.
12 Male	10.7	2.5	7.2	6.4	5.	1.9	3.8
13 Male	11.4	1.	9.5	6.5	5.7	1.6	5.4
14 Male	11.5	2.5	8.8	6.5	6.5	3.	3.8
15 Male	12.	1.6	9.2	6.5	7.	2.8	5.4
16 Female	12.7	1.3	10.7	7.	6.5	2.2	5.7
17 Male	10.1	1.5	7.	5.4	6.	2.5	3.2
18 Male	9.8	1.3	7.5	5.5	5.	2.7	4.1
25 Female	12.3	1.5	10.1	8.	5.3	2.5	6.6
31 Male	12.	2.2	8.3	6.6	5.9	2.	4.5
33 Male	11.1	2.4	7.3	6.5	5.1	2.5	4.4
34 Female	12.	1.3	9.2	7.9	5.7	3.2	6.7
35 Male	10.4	2.2	7.	6.	5.2	2.2	4.1
38 Male	12.	2.8	7.1	7.9	5.1	2.5	5.2
39 Male	12.1	1.9	8.2	6.6	6.3	2.2	4.9
40 Male[1]	15.2	1.3	11.4	8.5	7.6	2.6	7.3
41 Male	13.	2.	8.8	6.5	7.	2.	4.6
42 Male	11.8	2.4	8.5	8.1	5.	2.7	5.7
43 Male,[2] left	12.3	5.7	5.	6.1	6.5	1.5	. .
44 Male, right	12.3	2.	8.1	7.5	5.5	2.1	5.5
45 Female	13.3	1.4	10.	8.4	5.9	2.4	7.3
46 Female	12.5	1.6	9.8	8.	5.3	2.3	6.4
47 Male	11.3	2.1	6.2	6.8	5.	2.	4.8
48 Female	13.	1.8	8.9	8.	5.6	2.2	6.5
49 Female	12.4	1.4	9.5	7.2	6.2	2.5	6.
50 Female	12.	1.	9.7	7.	6.	2.6	6.1

[1] Dissection, No. 43 not included in average.
[2] Dissection No. 40 also not included in average because of abnormally high pelvic brim; rachitic deformity.

GENERAL AVERAGES.

Adults.	Male.	Female.
Poupart's ligament	11.2	12.5
External ring	2.5	1.57
Length, internal oblique origin	8	9.8
Int. ring from pubic spine	6.4	7.67
Int. ring from ant. sup. spine	5.8	5.8
Int. ring from Poupart's ligament	2.2	2.56
Length, canal	4.3	6.3

Age and sex.	Length, Poupart's ligament; cm.	Distance, outer angle, ext. ring from pubic spine; cm.	Length, origin int. oblique along Poupart's lig. from ant. sup. spine; cm.	Distance, int. ring from pubic spine; cm.	Distance, int. ring from ant. sup. spine; cm.	Distance, int. ring above Poupart's lig.; cm.	Length inguinal canal; cm.
19 Female, 8-mo. fetus	3.8	.3	3.1	2.5	1.9	1.1	2.2
20 Male, 7-mo. fetus	2.8	over	2.2	2.1	1.2	.9	1.6
21 Male, 9-mo. fetus	4.7	1.	2.8	4.1	1.3	1.	3.
22 Male, 8-9-mo. fetus	3.2	over	2.5	2.2	1.6	1.1	2.2
23 Male, 9-mo. fetus	4.1	.6	2.4	3.5	2.2	1.3	1.9
24 Female, 5 years	7.	.7	5.7	4.4	3.	1.3	3.7
26 Female, 7-mo. fetus	3.2	over	2.7	1.9	1.6	1.	2.
27 Male, 9-mo. fetus	4.4	.4	3.5	3.5	1.6	1.3	3.2
28 Male, 9-mo. fetus	4.1	.5	3.6	2.8	1.6	.8	2.4
29 Male, 9 mo., left side	3.5	.8	1.3	1.8	2.	.9	1.2
30 9 mo., rt. side (No. 29)	3.5	.5	2.8	2.5	1.9	1.4	2.1
32 Female, 4-years	6.3	.8	5.	4.	3.3	1.8	3.2
36 Male, 9-mo. fetus	4	.4	3.1	2.8	1.7	1.2	2.7
37 Male, 6-7 years	7.3	1.	5.4	4.4	3.5	1.6	3.7
Average fetus	3.78	.37	2.87	2.79	1.66	1.11	2.33

Dissections 24, 29, 32 and 37 not included in averages.

the cremasteric loops. The fact that the length of origin in the female is relatively greater than in the male is thus a strong argument in favor of the theory that the cremaster muscle is, in part, derived from the internal oblique, a point which has been questioned by some anatomists.

It may be noted that in the two cases (17 and 47) presenting the shortest internal oblique attachments there were well-marked cremasteric fibers behind, as well as in front of the spermatic cord. To account for the presence of the cremaster posteriorly, the explanation has been given that the processus vaginalis (or the testicle) in its descent has passed through the lower portion of the internal oblique, separating the fibers instead of passing beneath them, the usual occurrence; that the lower fibers of the internal oblique, being displaced behind the cord, form the posterior loops of the cremaster, while the muscle proper, i. e., the portion investing the anterior surface of the cord, is derived from those fibers of the internal oblique which have been displaced anteriorly. Conceding this point, it is evident that the true cremaster in those cases has taken origin from the internal oblique fibers much higher up than is usual, thereby accounting for the shorter attachment of the latter muscle to Poupart's ligament, and adding another argument in favor of the above-mentioned theory of cremasteric origin.

COMPARISON OF THE AVERAGES OF MEASUREMENTS IN MALE AND FEMALE.

Diagram 1.—General average in male—twenty-five dissections.

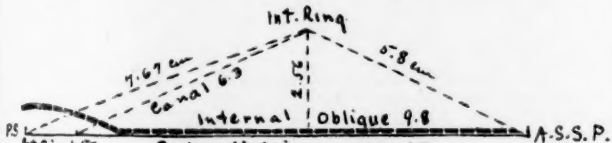


Diagram 2.—General average in female—nine dissections.

The average distance of the internal ring from the pubic spine, in the male, was found to be 6.4 cm., and from the anterior superior spinous process, 5.8 cm., showing that in a majority of the subjects the ring was situated above the outer half, rather than above the center of Poupart's ligament, as usually described. In this position the ring is afforded a greater protection by the internal oblique, and that this is so is shown more definitely when comparing from the tables of measurements the distance of the ring from the anterior superior spine, and the length of the internal oblique origin from Poupart's ligament, in the individual cases. It was further observed that the average distance of the ring from Poupart's ligament was approximately 2.2 cm., in some cases being as much as one and one-eighth inches (2.8 cm.) above. This, too, is important with reference to the amount of protection afforded the ring, for the nearer the ring to the anterior superior spine, and the further it lies from Poupart's ligament, the more firmly will it be covered by the internal oblique, whose fibers increase in size and strength in a direction upward and outward from the lowest point of origin. Hence the further the ring from this point, the greater is the resistance to hernia, made by the protecting muscle.

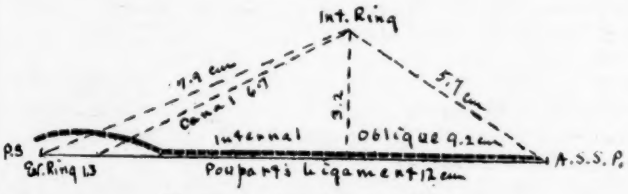
The internal ring lies, in the female relatively farther from Poupart's ligament and nearer the anterior superior spine than in the male. In the female the average distance of the ring from Poupart's ligament is 2.56 cm.; the distance from the anterior superior spine, 5.8 cm., and from the spine to the pubes, 7.67 cm. It will be seen that the female ring, in addition to being more firmly covered by the internal oblique muscle, due to the greater length of the origin of that muscle in the female, has from its higher (rather deeper than higher) and more external position, a still greater protection, by reason of the stronger fibers of the internal oblique in that locality.

The comparison of the male and female averages is not an altogether satisfactory one, because of the greater number of male dissections, yet that the length of the internal oblique origin is greater and that the position of the internal ring is farther from Poupart's ligament and more external in the female may be accepted as established.

Diagrams 1 and 2, which are life-size, drawn from the general averages, show the relative position of the rings and the length of internal oblique origin in the male and female. The difference between the sexes is even more strikingly shown in a comparison of individual cases. For this reason, Diagrams 3 and 4, representing dissections 8 and 24, are presented.

COMPARISON OF INGUINAL REGIONS OF MALE AND FEMALE.

Diagram 3.—Dissection 8—Male.



Digram 4.—Dissection 34—Female.

The dissections of the fetus were made with a view to comparing the position of the structures in the hernial region, in the child and adult, and to ascertain, if possible, the relative changes, if any, taking place during the development and growth. As stated, eleven fetal dissections were made, of which two were of females and nine of males, of ages varying from seven months to full term. The variation in the positions of the parts under discussion bore, in the fetus as compared with the adult cadaver, no such marked relation to the sex. The later differences are seemingly due to conditions arising during the growth of the child. The averages given, therefore, are from all the fetal dissections, both male and female.

The external ring in the fetus averaged but .37 cm. in length. When compared with the length of Poupart's ligament (average 3.78 cm.), it will be seen that it is proportionately smaller than in the (male) adult in three cases, Nos. 20, 22 and 26, Poupart's ligament did not enter into the formation of the ring, the divergence of the external oblique aponeurosis taking place just over, or slightly internal to the pubic spine, the cord (20–22) and round ligament (26) passing down over the crest of the pubic bone. A

variable increase in the size of the external ring in proportion to the size of the other parts must, therefore, take place during the course of postpartum development.

The ligamentous origin of the internal oblique in the fetus is proportionately greater than that of the adult (male), averaging 2.86 cm., approximately four-fifths the length of Poupart's ligament, while, as shown, the attachment in the (male) adult averages two-thirds of the length of the ligament. (In several cases the origin of the muscle extended to within .7 cm. of the pubic spine, the fibers arching inward immediately under and closely attached by fascia to the margin of the external ring.)

The fact that there is a proportionate decrease in the length of the internal oblique origin, as age advances, may be easily explained if the theory of cremasteric origin from the internal oblique be accepted. For, as the development of the cremaster goes on, it is perfectly reasonable to suppose that the lower fibers of the internal oblique cease to be such, by developing as a part of the cremaster. On the other hand, the fact that this proportionate decrease takes place, and that it is evident in the male and not in the female, adds another argument to show that the cremaster really arises from the internal oblique.

The most striking difference is, however, seen in the position of the internal ring, it being in proportion situated much more externally in the full-term fetus than in the adult, male or female. In all cases in the fetus it was much nearer the anterior superior spine than the spine of the pubes, and several cases show this variation to an exaggerated degree. (In dissection 21, vide diagram 5, the ring was situated but 1.3 cm. from the iliac spine and was 4.1 cm. distant from the spine of the pubes.) There seems to be in this a sort of natural compensation, inasmuch as the child's muscles are weak and but illy developed (especially true concerning the lower border of the internal oblique), and therefore unable to withstand much pressure from within, nature has seen fit to place the internal ring as far outward as possible, thereby gaining the point of greatest protection.

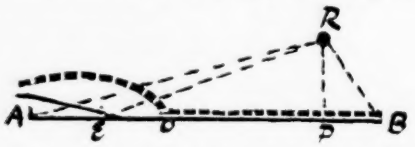


Diagram 5.—Dissection 21 (life size). A, B, Poupart's ligament, 4.7 cm. A, E, Ext. ring from pubic spine, 1 cm. O, B, Origin int. oblique, 2.8 cm. A, R, Int. ring from pubic spine, 4.1 cm. B, R, Int. ring from ant. sup. spine, 1.3 cm. P, R, Int. ring above Poupart's ligament, 1 cm. E, R, Inguinal canal, 3 cm.

The statement has been made that in early fetal life no inguinal canal exists as such, that the rings lie close together to facilitate the descent of the testicle, and that an ascent of the internal ring takes place after the testicle is in the scrotum. The first portions of the above statement I believe to be substantially correct. That an ascent of the internal ring takes place during the later weeks of intrauterine life seems not unreasonable, in view of the fact that the rings in the fetus at times lie relatively farther apart than in the adult. However, I do not believe that any ascent of the internal ring occurs during the course of postpartum development, but that there is a descent of the ring during extrauterine growth. It is true that the rings are close together in the child, but I believe it is due to the fact that the child is smaller than the man, and not that the proportionate distance between the rings is smaller. In view of the fact that the internal ring is subject to downward traction, acting, as it does, as a pulley over which the spermatic cord and round ligament pass, thus being made to assist in the support of the testicle or uterus, it seems improbable that the ring should ascend, but rather that these conditions should cause it to descend. It is, therefore, possible that any pathologic condition which tends, by reason of placing abnormal traction on the spermatic cord or round ligament, to increase the descent of the internal ring, forms another predisposing element in the causation of inguinal hernia. The greater descent of the ring in the male is undoubtedly due to the fact that the testicle exerts a greater downward pull upon the ring than does the uterus in the female.

Dissections 29 and 30, respectively of the left and right side of a full-term male fetus, are particularly interesting, inasmuch as there was present in this case a left congenital hernia with retained testicle. The first dissection was of interest from the beginning, because, being unable to find the spermatic cord at the external ring or the testicle in the scrotum, I was anxious to note the position of the undescended testicle, and to compare the position of the internal ring with that of the other fetal dissections. Upon reflecting the external oblique aponeurosis, a marked deficiency in the origin of the internal oblique was at once apparent, as also was a large increase in the degree of the Ferguson angle. The lower fibers of the internal oblique, instead of forming an acute angle with Poupart's ligament, formed with the ligament an angle of about 90 degrees. There was, however, no apparent protrusion either in the canal, or at the internal ring. The funicular process was extremely well shown. It extended from the internal ring well down into the scrotum, and seemed abnormally large. A finger was easily pushed through the ring. Suspecting a complication by a congenital hernia, pressure was applied upon the upper and middle abdomen, and a distinct descent of viscera through the internal ring was obtained. In this procedure, the descending viscera pushed the already abnormally arched fibers of the internal oblique still farther upward, demonstrating very prettily the condition obtaining in a hernial descent in the living body. The internal oblique was retracted upward, and the funicular process opened, a loop of gut presented through the internal ring. Upon pulling the intestine downward the testicle was seen lying above, and included in the loop, adherent to it. Measurements were taken which

SHOWING THE RELATIVE LENGTH OF ORIGIN OF THE INTERNAL OBLIQUE, AND POSITIONS OF THE INTERNAL RINGS IN DISSECTIONS 29 AND 30.

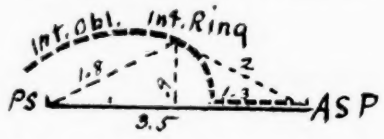


Diagram 6.—Left side—Congenital hernia.

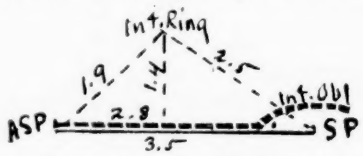


Diagram 7.—Right side—Normal.

showed the length of Poupart's ligament to be 3.5 cm., the distance of the center of the internal ring from Poupart's ligament .9 cm., the distance from the anterior superior spine 2 cm., and from the spine of the pubes 1.8 cm. The length of the origin of the internal oblique muscle was found to be but 1.3 cm., about one-third the length of the ligament. It will be seen from these measurements, taking into consideration the 90 degrees of the Ferguson angle, that the internal ring derived but little, if any, protection from the internal oblique. The fact that the 90 degrees of the Ferguson angle persisted when no hernial protrusion was present, and that the angle was further increased when the descent occurred, would seem to indicate that the abnormal upward arching (and weak origin) of the internal oblique was not altogether due to the hernia, but that it was a congenital defect, and as such, a contributing cause to the escape of the gut. The relations of the parts are shown in Plate 1, which Dr. Walter Fitzpatrick has kindly prepared from a sketch taken at the time of dissection. (The gubernaculum testis was not present; this may serve to explain the condition of cryptorchismus.)

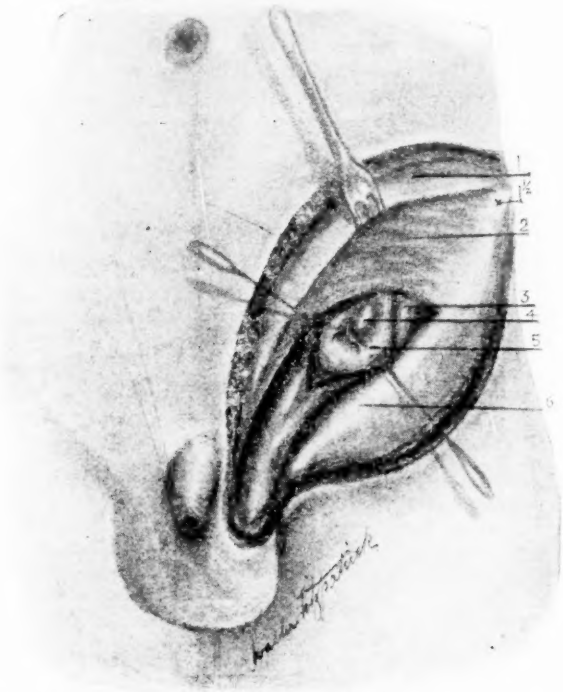


PLATE I.—Congenital hernia with retained testicle. 1. External oblique. 1½. A. S. S. P. 2. External oblique and transversalis. 3. Sac. 4. Testicle. 5. Knuckle of bowel. 6. Poupart's ligament.

The testicle was freed from its adhesions to the bowel, but could not be pulled down easily, further than the external ring. Greater traction placed too strong tension upon the spermatic cord. In an operative case of this kind surgeons advise either the replacement of the testicle in the abdominal cavity (extra or intraperitoneally) or its removal, for the reason that if pulled downward, from continued tension, pain, inflammation, with possible gangrene, etc., might result. Another important reason why the testicle should not be forcibly dragged down into the scrotum is that the cord, by its traction upon the internal ring, would tend to pull the ring downward and place it beyond the point of firm protection by the internal oblique, as growth went on, and so predispose to an easy return of the hernia.

Experimentally, the gut being replaced in the abdomen, the processus funiculo-vaginalis was cut off flush with the internal ring, the testicle placed between the peritoneum and transversalis fascia, well to the outer side of the ring, and the ring closed by interrupted sutures through peritoneum and transversalis fascia. The internal oblique and transversalis muscles were then sutured to Poupart's ligament well down toward the pubic spine, after Dr. Ferguson's method of operation. Strong pressure was then made upon the abdomen, forcing the viscera downward into the pelvis and against the lower abdominal wall, especially at the internal ring—the same procedure which had caused the hernial descent before the normal relations of the parts were restored—but no protrusion through the internal ring was obtainable.

For comparison, dissections were conducted upon the right side of the same fetus, and the measurements revealed a radical difference in the position of the parts when compared with those of the left side. Diagrams 6 and 7 show the position of the parts on the right and left sides. They represent exactly the measurements given in the tables, and when compared demonstrate clearly the greater amount of muscular protection which the right internal ring received. That this child, or man—providing development had gone forward normally—would have had a right oblique inguinal hernia is altogether improbable.

SHOWING LENGTH OF ORIGIN OF INTERNAL OBLIQUE AND POSITION OF THE INTERNAL RINGS, IN DISSECTIONS 43 AND 44—MALE ADULT.

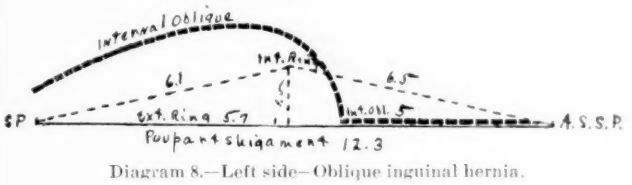


Diagram 8.—Left side—Oblique inguinal hernia.

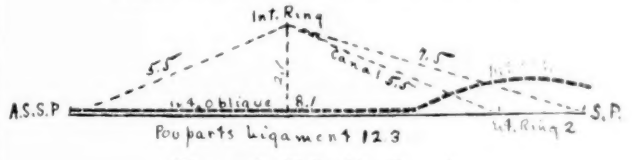


Diagram 9.—Right side—Normal.

After dividing the internal oblique fibers upward to the internal ring, the ring was enlarged to the size of the internal ring on the left side before the latter had been restored, and downward pressure again applied upon the abdomen. The intestine descended easily through the ring. The gut being returned, the cut edges of the internal oblique were united by interrupted suture, without, however, in any way reducing the size of the internal ring, and pressure once more applied to the abdomen. No amount of force, however, produced a protrusion of the abdominal contents, demonstrating clearly the valve-like action of the internal oblique.

Dissections 43 and 44, respectively of the left and right side of the cadaver of a male adult, are represented in diagrams 8 and 9. In this subject there was present on the left side an oblique inguinal hernia. The exceptionally enlarged external ring, the downward and inward displacement of the internal ring, and the marked deficiency in the origin of the internal oblique, together with the largely increased degree of the Ferguson angle—in this case about 90 degrees—are, when compared with the normal relations of the parts shown on the right side, clearly ex-

hibited. That the internal oblique muscle, because of its deficient origin and the pathologic arching of its fibers, failed to protect the left internal ring is self-evident. That this defect in the muscle was altogether induced, or we may say, artificially produced, by the hernia, is improbable, especially when the length of origin on the right side (8.1 cm.) is considered. It seems likely that this subject illustrates exactly one of Dr. Ferguson's points, namely, that a congenital defect in the muscle had predisposed the subject to the hernia.

The facts as shown, then, indicate that in the enumeration of the predisposing causes of oblique inguinal hernia, in addition to those of age, sex, occupation, inheritance, elongated mesentery and weakening of the abdominal walls from traumatism, obesity, gradual atrophy, or stretching of the muscles, there should be added weakening of the abdominal walls from: 1, congenital deficiency in the origin of the internal oblique; 2, increase in the degree of the Ferguson angle, or from both.

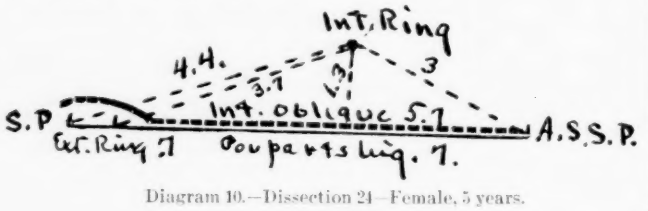


Diagram 10.—Dissection 24—Female, 5 years.

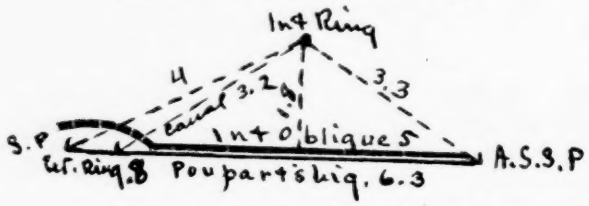
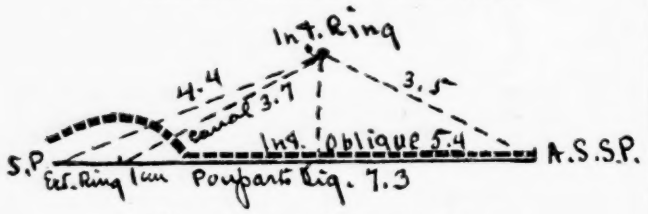


Diagram 11.—Dissection 32—Female, 4 years.



Digram 12.—Dissection 37—Male, 7 years.

Jacobsen, in his section in Morris' "Anatomy," makes the statement that inguinal hernia occurs more often in man than in woman because of the smaller size of the female canal and rings. He also states that an inguinal hernia in the female is always congenital, i. e., that it has descended into an unobliterated canal of Nuck, and that "any fibers of the internal oblique which may be present are but illy developed." It is a fact that in cases of inguinal hernia in the female, the internal oblique is but illy developed and possessed of an abnormally short origin; that this defect is congenital, when the normal origin of the muscle is taken into consideration, is very probable, and this more than probability, this truth, warrants the statement that the muscular deficiency rather than the element of size of ring or canal, or presence of an unobliterated processus vaginalis had formed the greatest predisposition to the hernia.

As has been stated before, I do not believe that the smaller size of the female rings is responsible for the comparatively greater number of male hernias, but that it is due to the greater protection to the internal ring in woman than in man. In any case the value of the greater or smaller size of the rings in regard to the restraint of hernia, when compared to the value of the protection given by the internal oblique muscle, is, in my judgment, immaterial. The internal ring is, in reality, but the beginning of a prolongation of the transversalis fascia along the spermatic cord. It is practically covered only by peritoneum; it derives its only real strength from its admittedly rather indefinite margins of transversalis fascia, and in view of the fact of its ready enlargement in case of hernia, it offers but small resistance to the descent of the gut. Again, I repeat that it is not the size of the ring, but the amount of protection afforded that ring, which forms predisposition to hernia. That an artificial hernia can be produced, can be demonstrated on any cadaver of firm tissues, by enlarging the internal ring, and dividing or cutting away the internal oblique to the level of the internal ring. By firmly suturing the internal oblique to Poupart's ligament, no amount of force will cause the intestine to descend.

The degree of the Ferguson angle is very important with reference to the protection from hernia. Given a case in which the internal oblique arises only from the outer half of Poupart's ligament, if the muscle passes inward without much upward arching, it will be noted that the strength of the muscle fibers covering the internal ring is as great, if not greater, than that of a case in which the muscle arises from two-thirds of the ligament, but where the degree of the Ferguson angle is large.

I believe that the cremaster has a twofold use. Besides assisting in the support of the testicle, it serves, because of its origin from both the internal oblique and Poupart's ligament, to so bind down the lower border of the internal oblique as to prevent an increase in the degree of the angle of Ferguson. Deficiency in size and strength of the cremaster might well be considered when enumerating the causes which predispose to hernia.

Macready has shown that 25 per cent. of all persons with hernia give a family history of the same trouble. Without doubt heredity plays a large part in predisposition to rupture. What is more reasonable—the parents, one or both, having a deficiency in the internal oblique muscle—than that they should transmit this defect to their offspring? It would seem that the fact of a congenital muscular deficiency existing in some cases explains the manner in which predisposition to hernia is inherited.

The purpose of operation for the radical cure of oblique inguinal hernia should be: 1, to restore the internal ring to its normal size and position, and, 2, to so suture the internal oblique and transversalis muscles (the latter adds additional protection) to Poupart's ligament as to render firm protection to the restored ring. The spermatic cord should not be disturbed. Dragging it out of its bed and placing it in an unnatural position by suturing the internal oblique beneath it, causes a divergence in the internal oblique fibers immediately in front of the internal ring, and in reality serves to weaken the muscle where it should be strongest. Why this has been done, and is being done every day, has yet to be satisfactorily explained.

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DISCUSSION.

DR. E. W. ANDREWS—As to the relative frequency of the congenital and acquired varieties of hernia, there is great diversity of opinion, the extremists telling us that nearly all so-called acquired hernias are really congenital. But the moment

we undertake an operation for inguinal hernia, in disposing of the hernial sac we find out whether or not we are dealing with congenital hernia, one which has no independent sac. The essayist laid great emphasis upon the structures in the posterior wall of the inguinal canal, particularly the conjoined tendon, and the internal oblique. A large number of herniæ are due to congenital deficiency, even if not congenital; the internal abdominal ring is an opening through the structure known as the transversalis fascia rather than through anything else. The transversalis fascia is dense in the inguinal region. The conjoined tendon, as a tendon or aponeurosis, does not appear in operations for hernia, the part we meet being muscular. In the more modern type of operations the internal ring is the site where we do practically all plastic work on the posterior wall in order to "restore the obliquity of the canal," which means that we narrow the internal ring by our suture work. Dr. Turck was fortunate in demonstrating by comparative measurements (hernia on one side, and normal anatomy on the other) that the internal ring is sometimes nearly absent. From the fibers of the obliquus internus springing upward and inward there may be no muscular or even aponeurotic tissue as far as the outer margin of the rectus, leaving a large deficiency. When we begin to perform such an operation as the Bassini, which calls for suturing of the conjoined tendon and transversalis fascia down to Poupart's ligament, we will immediately meet with serious mechanic difficulty; in such cases Poupart's ligament must be dragged up high, and the upper margin of the muscle must be dragged down a long distance, both of them are put under extreme tension, the ligament being drawn upward and the margin above being drawn downward.

Bassini ought to be given credit for having led us into the open operation, by which I mean splitting open the canal.

This paper has clearly shown me the real cause of deficiency in so many herniæ. Different operators remedy the defect differently. Dr. Ferguson performs practically the Halsted operation; places all the layers, both the external oblique and internal oblique, firmly together, then places the cord in the exposed position outside the aponeurosis.

DR. A. E. HALSTEAD—I wish to call attention to a point not mentioned by the author, one which I consider has a direct bearing upon the subject under consideration, that is, the failure of development of the transversalis as an etiologic factor in the causation of hernia. In many cases the conjoined tendon, especially that part derived from the transversalis, is wholly or partially deficient. In others this tendon covers the whole breadth of the triangle, reaching outward along the deep femoral arch as far as the outer limits of the internal abdominal ring, thus supporting the ring and inguinal canal. In a few cases, the outer part attached to Poupart's ligament is detached from the inner portion and forms a separate band which has been designated the ligament of Hesselbach, while the inner part is known as the ligament of Henle. The interval between these muscular bands, when of any considerable width, necessarily constitutes a weak place in the abdominal wall and predisposes to herniæ. The importance of defective development of the abdominal muscles, particularly of the transversalis and internal oblique in relation to the causation of hernia has been ably discussed by Kenneth Douglas. (*Journal of Anatomy* Vol. xxiv.)

As to the causation of inguinal herniæ in general, I do not believe that defective development of the abdominal muscles is to be regarded as the sole cause. In most cases such a defect may be present, but there are many other factors equally as important. Among these may be mentioned gradual weakening of the abdominal parietes, from any cause: malposition of the abdominal viscera, particularly low insertion of the mesentery, or abnormal length of the mesentery, either congenital or acquired. Any considerable increase in intra-abdominal pressure, with gradual weakening of the abdominal wall from any cause, will be sufficient to cause a hernia, even though the muscles have their usual extent of attachment.

DR. ALEXANDER HUGH FERGUSON—I picked out two men in this city for the purpose of taking measurements of fifty cadavers, Dr. Turck and Dr. Borland. It was the study of the return of hernia after operation for the radical cure, that led me to take an interest in the work. I had returns of the hernia after the radical operation, no difference what method was adopted. When we sutured beneath the cord, as in the Halsted-Bassini operation, or utilized the sac after the method of Macewen, relapses would occasionally occur at the upper and outer angle of the wound. This has been the observation of other surgeons. In dealing with these cases I always noticed there was a very short origin of the internal oblique muscle at Poupart's ligament; then it occurred to me that we must dissect our hernial operations with more care, and, instead of making an incision directly down over the hernial protrusion and thereby at once encountering all the adhesions that had taken place, we must raise a flap from the hernial region. Almost invariably, in chronic cases, we found the aponeurosis of the external oblique, the internal oblique muscle, often the transversalis and the sac adherent together; consequently when cutting straight down over the hernia we could not always make our demonstrations very clear. It is better to make a semilunar incision, commencing at Poupart's ligament, one and a half inches below the anterior superior spine, running inward and then downward over the conjoined tendon, cutting down to the aponeurosis of the external oblique, raising a flap right off the whole hernial protrusion, and thereby enabling us to completely study the condition of the hernial region. Since I commenced to do this, that is, since Dr. Andrews saw me operate, I have done but two or three operations by what I called the combined method, which I published nearly five years ago.

For the last eighteen months I have discarded this method and other known operations. I have noticed that in hernia the internal oblique very seldom comes over the internal ring, observing it only in one of fifty cases, and in this case there was a fatty degeneration of the origin of the internal oblique which partially severed it from its normal attachments to Poupart's ligament, and which accounted to some extent for the hernia. Dragging the cord out of its bed is not surgical. By making a new internal ring, and suturing the internal oblique down where it ought to be, to Poupart's ligament, thereby covering over the internal ring at the upper two thirds of the canal, we get protection which is not afforded in any other way. Then, the external oblique is always sutured over that. It simplifies the operation and leaves the structures in the position in which they are found, in a normal person. Therefore, I call this method the typic operation for hernia, because it leaves the abdominal wall as it ought to be. The atypic operations are those where we have to utilize the sac to strengthen a weak position, whether that be Poupart's ligament or the conjoined tendon where it is thin and pushed out or the upper and outer angle of the wound; or where we utilize the Sartorius muscle and bring it up and make an additional wall; or resort to the method of Dr. Bloodgood, in vogue at Johns Hopkins Hospital, of utilizing the sheath of the rectus muscle. I classify these as atypic operations for the radical cure of hernia. They, are plastic operations.

Dr. Turck had been very fortunate in getting the cadaver, which had a hernia on one side, and no hernia on the other, and the experiments which he carried out in connection therewith are very valuable. He has made accurate measurements.

He has given us a new observation with regard to the descent of the internal ring, which I think can be borne out by the surgery in connection with non descended testicles. The raising of the cord out of its bed and placing it in this angle described to-night fills the angle to a certain extent. In that lies the good results from Bassini's operation. Halsted, instead of leaving the cord at this angle, splits the internal oblique muscle and internal ring, before raising the cord.

Dr. Andrews makes his flap in this manner (illustrating), raises it outward, raises the cord, then sutures all structures until he nearly closes the angle described by the essayist, and then he brings the flap over the cord. Raising the cord out of its bed to fill in this angle should be discarded altogether, because: 1, it is unnecessary; 2, it does not leave the abdominal wall as it ought to be; 3, of injury to the cord and loss of some testicles thereby and, 4, because relapses occur at this angle. Every surgeon of considerable experience has doubtless had a plastic inflammation of the testicle following dragging the cord out of its bed and subsequent atrophy of the testicle. This is a very unpleasant thing to happen in connection with our surgical work.

Dr. Turck's work will be of value to me in the preparation of my paper on "Typic and Atypic Operations for the Radical Cure of Hernia."

DR. TURCK (closing the discussion)—I have not attempted to go into the surgical phases of hernia, but have dealt only with some of the important anatomic points bearing on the subject. As to the internal ring, it does not exist as such normally. It is a result of dissection, a potential opening, which is a true ring only during the descent of the testicle in fetal life, and in case of a hernia later. The margins of the internal ring are entirely indefinite, and measurements of its size depend largely upon the judgment and ideas of the dissector. For this reason I did not attempt to give the size of the artificially produced opening, but rather to find the center of the weak point in the abdominal wall caused by the prolongation of transversalis fascia along the cord. As Dr. Andrews has stated, the transversalis fascia is strongest a variable distance about the potential opening, forming the so-called margins of

the ring, but I do not believe that the fascia is sufficiently strong to withstand the pressure from within without aid from the muscle. This is further brought out by the fact that the ring is readily enlarged in cases of hernia, when a deficiency in the internal oblique is found; a lack of protection from a deficient muscle allows the gut to force its way through the fascia; on the other hand, it is not likely that a hernia emerging through a deficient ring would cause a very marked deficiency in the muscle origin.

As to the gap between the lower border of the internal oblique and Poupart's ligament, I have offered the suggestion that is normally filled by the cremaster, the latter muscle serving to bend down the otherwise practically free border of the internal oblique.

Dr. Halstead mentions deficiency in the transversalis in its relation to hernia. The transversalis has, I think, no influence in regard to protection from oblique inguinal hernia—the muscle arches above the internal ring—does not cover it at all. It is important, however, with regard to direct inguinal hernia in its relation to the relative strength or weakness of the conjoined tendon.

As to the disposal of the cord in an operation for hernia, bringing the cord out through the muscle by suturing a part of the internal oblique beneath it I do not believe to be a justifiable procedure. It is not altogether the obliquity of the inguinal canal, nor the size of the internal ring, or its position, or the strength of the fascia which forms it, which protects from hernia, but rather the strength of the muscular valve which covers the ring. If that is so, when a divergence in the muscle fibers is created, immediately over the ring, the muscle is weakened where it should be strongest.

LEAD ILEUS MISTAKEN FOR APPENDICITIS.

BY JOHN PRENTISS LORD, M.D.

OMAHA, NEB.

At about 11 P. M., Nov. 25, 1898, I was called to St. Joseph's Hospital to see a case of appendicitis. The physician in attendance said that the patient had been delirious most of the day, was vomiting continuously, and the bowels had been constipated during his present illness of five days duration. There was marked pain and tenderness over the right lower quadrant of the abdomen, his temperature being 101.5 and his pulse from 130 to 140. He had had a previous attack last June. The man was now becoming progressively weaker, and the doctor thought he should be operated on that night, if at all.

Both the patient and myself arrived at the hospital about midnight, and I found him to be a man 28 years of age, quite a corpulent subject, with a very prominent fat abdomen, he being a bartender by occupation. The man was very pale and weak, wore a pinched expression, pulse 140, and complained chiefly of tenderness somewhat internal to McBurney's point. The patient being quite somnolent and delirious, his statements were not considered reliable. There was tenderness and rigidity over the whole abdomen, and the muscles had a board-like quality, which would have been right-sided in appendicitis, unless diffused by general peritonitis. There was general tympanites except over an area about the size of the palm, just over and internal to the normal location of the appendix, where there was an indistinct doughy mass, suggestive of a ruptured abscess. This tumor (?) was more distinctly outlined by percussion, which elicited a flat note over the area described. The case did not seem to me typic of appendicitis, but the recognition of a serious obstructive factor caused me to recommend immediate operative intervention. This was expected, and readily consented to by the patient's relatives.

Under an anesthetic the rigidity of the muscles was little changed because of a great tolerance for chloroform, enough of which could not safely be given to relax the abdominal muscles. The tumor (?), however, and the area of flatness had changed perceptibly, and occupied a median position below the umbilicus. This was commented upon, and the knife was drawn to make a median incision, because an operation for obstruction was the pervading thought, when, recalling the history of a previous alleged attack, I resolved upon the McBurney incision as the most likely to uncover the primary cause of the mischief. A long appendix, free from adhesions, was, with some difficulty, lifted from its postcecal position, its short mesentery ligated, and cut step by step, to allow the appendix to be extracted from its deep location. The stump and cuff were secured by the Barker method, to economize time. The organ was disgustingly healthy, in view of expectations, though it was thickened and contained two small hard concretions of fecal matter, which were about the size of small grains of wheat. These, together with a lumen almost obliterated, and walls thickened and hardened, were evidence sufficient to show that there had been inflammation from which resolution had not wholly taken place; therefore, the attack in June was probably appendicitis. But what had caused the present obstruction and illness?

The intestines were entirely free from adhesions. The cecum and ileum presenting were congested and so distended as to interfere with manipulations. Exploration toward the median line quickly revealed a mass of ileum and jejunum markedly contracted, their approximate size having been about that of the little finger; indeed, they were mere tape-like cords. A large proportion of the small intestines were brought outside the abdomen and were meanwhile protected by hot towels. Concluding that there was no advantage, and possibly considerable disadvantage, in this examination, the process of evisceration was discontinued, and bowels were returned. To facilitate the closure of the wound, the cecum was punctured by a trocar and the gas allowed to escape through the canula, through which eight ounces of saturated solution of Rochelle salts were injected to insure early bowel movements. The abdominal wound was closed by layer catgut and retention worm-gut sutures, with perfect results.

The operation was well borne, considering the precarious condition, and it was necessary to sustain the patient by hypodermics of strychnia, nitroglycerin and whisky. There was stupor and delirium until the bowels began moving at 10 A. M. of the same day, when he was much improved in all respects, though the convalescence was slow, and at times interrupted by a return of the somnolence and delirium. This was always improved by salines and stimulants. There was some fever during his entire stay of less than four weeks in the hospital. He has since been doing well.

When the operation was over I remarked that the only similar case which I had ever seen was in a man in whom lead poisoning had been discovered subsequent to operation, when I was told by one of my assistants that the man was a plumber, which fact had not been elicited by me. Further inquiry revealed that this was true, but that he had not worked at this trade for four years, though examination revealed well-marked evidence of plumbism in

his gums, so that there was no doubt in my mind as to the character of his ailment.

When our patient was sufficiently recovered, he was asked about the amount of lead pipe used in drawing the beer, whereupon he answered: ten or twelve feet, that the ice-box was in the basement, and the beer was drawn through the pipe to the floor above; and the circumstance that he slept in the saloon and took beer early and warm, English style, left nothing to be desired as regards causation.

The other case of lead ileus above referred to, and reported because of its manifest interest in this connection, was in an engineer and janitor, who had suffered for a number of weeks with pain in the left hypochondriac region, constipation, loss of appetite, general debility, etc. The pain was at times so severe that it required repeated hypodermics of half a grain or more of morphia, which often failed to relieve. In fact medication brought so little relief that the man begged for relief by operation, he insisting that the contents of his bowels were arrested at the painful point, i. e., at the splenic flexure of the colon. Repeated examinations were negative, though it was thought that there was something there, but it could not be defined. There was difficulty in moving the bowels, but they could be moved. The case was obscure and the patient, tiring of failure to secure relief, insisted on an exploratory operation, which was done by my associate, Dr. Galbraith, May 19, 1898. The only abnormality found was a constriction of the colon, for about ten inches, at the splenic flexure; the gut at this portion having been reduced in circumference to that of an average-sized finger, the contraction of the circular muscles so condensing and thickening the walls as to render the intestine of a firm, solid consistency; the lumen must have been nearly obliterated. The cause of this condition was not understood at the time, and nothing was done, though in the after-treatment vigilance was maintained to keep the bowels moving, and a good recovery followed. The true character of the trouble was discovered in the second week after the operation, the blue line, together with the history, establishing the diagnosis without peradventure.

Literature is for the most part mute upon this part of the pathology, and the only references to this condition which I find in the text-books are the following: The "Reference Handbook of Medical Sciences" states that there is a spasmodic contraction of the intestine, producing constipation in man and diarrhea in animals. Tyson's "Practice of Medicine" (1896 edition) says: It (the colic) is probably due to powerful contractions of the muscular walls of the intestine. Unlike flatulent colic, the abdomen is not distended but flat, and may even be contracted, sometimes so much so that it is said that the vertebræ may be discerned through the abdominal walls. Still, distension of the abdomen is occasionally present. Eulenberg's "Realencyclopädie der Gesammte Medicine," Dritte Aufläge, Band ii, contributes definite and valuable information on the subject. Dr. Thomas Oliver, F.R.C.P., in an exhaustive article upon lead in a "System of Medicine," edited by Allbutt, recently published in London, states that "in animals that have died from plumbism he has found the small intestine irregularly contracted; at places so extreme was the spasm that the intestine felt like a piece of cord, its caliber being obliterated. Was the contraction of the intestine in these cases due to the direct action of lead upon the muscular fiber, or had the arteries become primarily contracted, and thus, by shutting off the blood-supply, caused nervous excitation and muscular contraction? Clearly the pain is due to extreme spasm of a portion of the intestine and pressure upon sensitive nerves, and the recurrent pain would be explained by the effort of the dilated segments of the intestine to pass their contents on into the constricted portions below. Spasm and arterial ischemia, by cutting off the supply of liquid, would aggravate constipation. It is probable that the nerve ganglia are first affected."

In response to a letter of inquiry, Dr. J. B. Murphy kindly sent me a reprint from an article of his on "Ileus" (vide JOURNAL, Jan. 4 and 11, 1896), and, because of its great interest and importance, I reproduce the report of a case of lead ileus detailed by this distinguished surgeon.

Male, aged 40 years; admitted to the Alexian Brothers' Hospital June 10, 1894, and referred to me by the attending physician for operation. The patient gave the following history: Five days previous was attacked with pain of a spasmodic character in the abdomen, followed by vomiting and inability to move the bowels. The abdomen became greatly distended and the symptoms continued up to the time of admission. All efforts to move the bowels by cathartics, stomach and intestinal irrigation were futile. The physician in charge, who had before treated him through a number of attacks of lead colic, believed this attack differed materially from the others, particularly in its duration, which was five days, and the degree of depression. The physical signs showed the abdomen decidedly tympanitic, and an enlarged coil of intestine could be recognized leading up to the right hypochondriac region, where it suddenly terminated. The patient located the pain at this point. It was decided that a laparotomy would be less dangerous than to allow the patient to remain longer with a possible mechanic obstruction. Median incision was made, the omentum withdrawn, and the hand passed up to the right hypochondriac region; the enlarged coil of the intestine was grasped and drawn into the wound; with it came eight inches of a contracted portion, which resembled a solid cord three-eighths of an inch in diameter and was as stiff as a rope of that size.

At first I believed it to be an organic stricture. The intestine above it measured over two and one half inches in diameter, and was distended with gas and fluid feces. Below, the intestine was empty, soft and pliable. After ten minutes' exposure to the air the spasm at the proximal end began to subside and dilatation gradually advanced to the distal. After twenty minutes the intestine had expanded to about one inch in diameter, was returned and the abdomen closed. The bowels moved within three hours. The patient did not have an unpleasant symptom and left the hospital in ten days. The theory of lead colic advanced has been that it was due to a tonic contraction of the muscle of the bowel; but from superficial review of the literature on the subject, I can not find a case recorded where this theory was verified by observation and examination of the contracted portion, as I have noted in this case. Dr. Murphy also states that this contraction is also produced by tyrotoxicon, etc.

Dr. J. S. Foote, pathologist to the Creighton Medical College, thus explains the effects of lead in producing these phenomena: "The presence of lead in the tissues of the body seems to declare itself either by a resulting paralysis or in varying degrees of smooth muscle contraction. Its method of operation is one of arrest or modification of cell oxidation. We know that an oxygen income and a CO_2 outgo are necessary conditions of cell metabolism, and whenever these are upset, metabolic failure or excess is the result. If the former, paralysis would follow, if the latter, irritation, with the former "drop wrist" or extensor paralysis, with the latter an irritation equivalent to inflammation. This occurs as a peripheral neuritis with the sympathetic ganglia involved in the gastro-enteric region and a tonic contraction of the smooth part of the small intestine and upper colon. The impulse which travels down the efferent nerves

to the muscle of the intestinal wall meets with an unusual resistance at or near the final distribution of the nerves to the muscle, on account of the modified cell metabolism, and the result is a gathering intensity of nervous energy at its natural point of escape, and an excessive irritation of both nerves and muscle. Muscle only knows how to contract and relax. If the irritation is continued for a long time, some degeneration may follow, with relaxation or paralysis."

It will be observed that none of these cases reported was typic of lead colic, the pain in each having been more localized than in the typic cases, and the retraction usually seen was absent.

It is probable in Case 1 that there was also a contracted segment low in the colon, which would account for the extreme distension of the lower ileum and colon, producing the tympanites. The larger mass of contracted small intestine simulated an inflammatory tumor, until its changed location admitted doubt. The running pulse, with absence of dicrotism, so characteristic of advanced general peritoneal infection was closely simulated. All things considered, the writer feels that his error was only that of fallible man; but is now confident that he will not be again led into the same error after this experience, which having now become yours may help to create greater precision in diagnosis and be of value. It is probable that in cases with tympanitis there are one or more localized constrictions in the bowel, most probably the colon. The more universal understanding by the profession of the pathology of lead ileus, may improve its treatment. The experience of Murphy in getting relaxation of the intestinal spasm by exposure to air, and the injection into the intestine of a solution of salts, as practiced by me, securing prompt bowel movements, suggests possibilities for relief by celiotomy in cases apparently hopeless under the usual methods of medical treatment.

TREATMENT OF SUDDEN SEVERE POSTPARTUM HEMORRHAGE.*

BY JOSEPH B. DELEE, M.D.

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CHICAGO.

Entirely appropriate to the hemorrhage that sometimes occurs after labor is the popular term "flooding." Such furious bleeding as may occur after a labor it is the lot of the general surgeon but very rarely to meet. Postpartum hemorrhage is *the* obstetric emergency, for here more depends on quick perception, rapid judgment and swift action than in any other condition incident to pregnancy. Even placenta previa and eclampsia, the other two furies of obstetric practice, do not demand such preparedness for complications as does postpartum hemorrhage. Reference is had only to those rare cases where during or after the placental stage, blood gushes from the genitals in a manner which is appalling and places in a few moments the life of the woman in acute jeopardy.

Some authors say that these cases are preventable, that they are due to improper care of the third stage, that a man who has many cases of postpartum hemorrhage has himself to blame (Spiegelberg), but they all recommend drastic measures for stopping hemorrhage and speak with a positiveness that comes only from experience.[1] Michaelis[2] reports a case where, after each of three labors, blood "rushed out like from a barrel with the bottom knocked out," and in the next two labors he removed the placenta at once. It is said that in Prussia a woman dies of postpartum hemorrhage every day,[3] and fatal cases that have occurred in skillful hands are well known. No doubt a large number of cases of bleeding in the third stage can be prevented by proper attention and conduct throughout labor, and there is no doubt that a woman ought almost never to die under such circumstances, but sometimes pathologic conditions exist that defeat every effort of the physician, and the woman bleeds to death under his hands, than which no catastrophe is more terrible.

Investigation of the causes of these hemorrhages bears directly on the physiology of the third stage, the study of the natural mechanism of hemostasis after the birth of the child.

The vessels of the placental sites are simply spaces between the muscular lamellæ, lined with a layer of endothelium, the vessels leading to and from these sinuses quickly losing their coats. Toward the end of pregnancy, according to Leopold, some of these vessels become thrombosed. Immediately after the birth of the child, sometimes even as the child is leaving the uterus, the placenta becomes wholly or partly detached, the sinuses passing from the uterine wall through the serotine decidua to the intervillous spaces of the placenta are cut squarely off, and may be seen on the placenta as open vessels, and felt on the placental site, being filled with clotted blood. Hemorrhage occurs from these sinuses, more or less with every labor, but nature has a very efficient and instantaneous method of controlling it. As the uterus contracts down on its lessened contents, the muscular lamellæ and bundles become superimposed on each other, they are felted together, the various layers slide in many directions on each other, also obliquely from without inward so that the wall thickens. The blood-spaces lying between these shifting layers are compressed, bent and twisted, and mechanically occluded as if ligatured. Some of them are surrounded by circles of muscle, so that the term "living ligatures" is quite apt. The efficiency of this mechanism of hemostasis depends on the vigor of the contraction of the uterine muscle and on the amount of its retraction or muscle elasticity.

Another factor in securing hemostasis is the thrombosis in the vessels themselves. Nature provides for hemorrhage during labor by increasing the total amount of the blood and augmenting its clotting power. This factor is of secondary importance and is relied on by the accoucheur only when absolutely necessary. In the study of the causes of hemorrhage, postpartum, failure of one or other function will be noted, to which must be added another cause, accidental, i. e., lacerations.

Failure or insufficient clotting of the blood can not give rise to the hemorrhages under consideration. Cases of persistent oozing of blood during which the patient's life slowly drains away may be due to this. Hemophila rarely causes death in women, or the class would soon be extinct, as the tendency is transmitted through the female. The writer believes that syphilis

* Read before the Chicago Medical Society, March 22, 1899.

[1] Dohrn: Die Behandlung des Nachgeburtzeitraumes, Jena, 1898.
[2] Michaelis: Neue Zeitschrift für Geburtskunde, Band iv.
[3] Siepen: Deutsche Med. Woch., 1893, No. 21.

can cause a temporary hemophilia by altering the blood and the walls of the fine vessels.

Atony of the uterine muscle, lacerations of the parturient canal, or as often happens, both together, give rise to the severest postpartum hemorrhage. Among the causes of uterine inertia in the third stage may be mentioned primary uterine inertia manifested in the first and second stages, either in uteri congenitally malformed or infantile or poorly innervated or weak from general asthenia; too rapid delivery—the uterus has not time to adapt itself to its diminished contents, and fatal bleeding may occur before it can gather itself together; irregular separation or retention of the placenta or part of it, or clots, interfering with the contraction and retraction of the uterus; habit, depending usually on a chronic endometritis or a myometritis.[4]

The lacerations that may cause dangerous hemorrhage after labor are tears of the cervix involving the circular artery, and especially lacerations of the lower uterine segment when the placenta is situated there. This is what makes rapid extraction in placenta previa so dangerous. The other injuries bleed freely, but they do not render the woman's life so quickly precarious. These lacerations are never due to a normal labor, and, unless the uterus ruptures spontaneously, are always the result of operative interference. A combination of atony with laceration, as is likely to occur when the placenta is inserted low in the uterus, bringing the placental site within the area that may be injured in delivery, gives the most profuse bleeding, as occurred in one of the cases to be reported, where the blood gushed out as from a hydrant, with a rushing noise.

Hemorrhages like these, which if not checked at once lead quickly to a fatal termination, are fortunately rare. The writer, in a practice that is mostly pathologic and operative, has met with only four cases in seven years. In the service of the Chicago Lying-in Hospital Dispensary, where 750 labors are handled each year, by young physicians, postpartum hemorrhage is not infrequently met with, sometimes quite severe cases, but there has always been time to get assistance and we have lost no woman from this accident in over 2000 labors.

The treatment of all cases of postpartum hemorrhage begins with the prophylaxis, and also with the preparedness to meet it when it occurs.

When the first and second stages of labor are characterized by weakness of the uterine contractions, flooding is likely, the inertia being carried over to the third stage. When any of the causes mentioned previously is present, the attendant should be ready for trouble in the third stage, especially if the woman gives a history of previous "floodings." When the labor has been terminated by forceps or version and extraction, especially in placenta previa, or if cervix incisions have been made, severe bleeding may be anticipated. Forewarned is forearmed.

Every labor should be conducted with a view to prevent complications, this one in particular. The patient should not be allowed to become exhausted by long labor. Food, usually liquid, should be administered at not too long intervals, and the same may be said of chloral and morphin, to secure rest and recuperation during a prolonged stage of dilatation. In cases where the conditions for forceps are fulfilled, the instrument should be applied before the powers of the woman are completely exhausted. The tendency to hemorrhage is greater after the use of chloroform, and the uterus must therefore be more carefully guarded.

In normal delivery the expulsion of the trunk should not be hastened, the child should not be dragged out of the uterus, and this warning applies with especial force to operative deliveries. Ergot should not be given during labor; its tendency to imprison the placenta is now generally admitted. As the child emerges, a hand should follow down the uterus, and if it does not retract promptly, it should, by gentle massage, be stimulated to contract. Brisk manipulation should be avoided, as it interferes with the normal mechanism of the third stage. After a careful trial of the purely expectant plan of treatment of the placentai stage, the writer can not recommend it for all cases. In labors that are perfectly normal, in women of good constitution where the uterus has shown itself worthy of confidence, the expectant method advocated so strongly by Ahlfeld is in place.[5] It has its strongest advocates and gives it good results in foreign maternities where the cases are healthy peasant women. For the women of the higher classes, especially those who have enjoyed several years of refined inactivity, the uterus requires close guarding. The modern trend toward athletics for women will therefore please the accoucheurs.

The uterus should be given time to accomplish the complete separation of the placenta, when the latter can be expressed by the gentlest pressure on the fundus. Thirty minutes have usually been found sufficient, and unless there is hemorrhage, internal or external, the third stage should not last less than this. The last stage of labor requires more care than the other two. The uterus must not be allowed to fill up with blood, as it may contain enough to lose the woman. The hands should be kept aseptic, so that internal interference may not be delayed when needed. As to the value of strychnin, quinin, viburnum, etc., in preventing hemorrhage, the writer has had little experience.

Half of the battle is won if the accoucheur is prepared for all emergencies. A physician has not the moral right to assume charge of a case of labor unless he has at his fingers' ends the various means of controlling hemorrhage, both surgical and obstetric, and unless he has prepared himself in advance for accidents of this kind. The preparation for every labor should preview hemorrhage. There should be at hand at least five yards of sterilized or antiseptic gauze for packing the uterus, sterilized vinegar, a sterile douche-bag, and the kettle should be full and boiling. The obstetric outfit should contain two pairs of double vulsellum forceps, long uterine packing forceps, a broad perineal retractor, not too long, in addition to full-curved round needles and a long needle-holder, for sewing up lacerations. These instruments should always be boiled with the forceps, or in preparation for other operative deliveries. An apparatus for the injection of saline solution under the skin should never be wanting in the obstetric bag, and the hypodermic syringe should be in working order. The feeling that he is prepared for all emergencies gives the accoucheur a confidence that is soon reflected in his work, and in the patient, and repays many times the trouble necessary to carry out these details. Forearmed is forewarned.

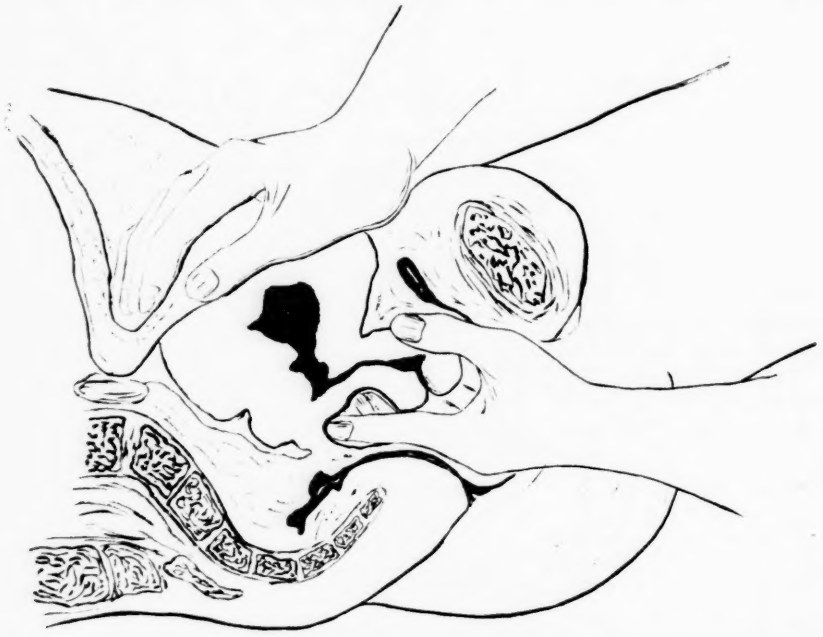
[4] v. Weiss; Archiv. für Gynäkologie, Bd. 46, Heft 2.

[5] Ahlfeld: Lehrbuch der Geburtshilfe, 1898. Seite 161.

The treatment should be quick and decisive, because the suddenness of the loss of blood has a great deal to do with the amount of shock attending it. Patients often rally from severe hemorrhage with surprising quickness, which is due to recovery from the shock. The recovery from a dangerous loss of blood is less rapid. Women that have suffered continual or small losses of blood throughout several weeks stand hemorrhage during labor poorly, as is exemplified in cases of placenta previa.

If the placenta has not been delivered, it should be removed at once; vigorous massage till the uterus hardens, then a strong Credé expression. If unsuccessful, it should be removed manually. The severity of the bleeding may indicate the latter procedure at the start.

If the flooding occurs after the third stage, the most successful remedy is the compression of the uterus. One hand gathers the cervix together and holds it tight, the outside hand forces the fundus down on the inside hand, at the same time massaging it vigorously. The uterus is bent like the letter V and its walls crowded together. The effect, especially if there is atony of the uterus, is immediate; if there is laceration it is not so good.



Compression of the aorta is valuable in these cases. If unprepared to enter the uterus, the hand may press the aorta against the spine, giving time, as the late J. H. Etheridge said, to "collect your wits." All the blood is not shut off from the uterus as the spermatics are given off above the point of compression, but that the procedure does check the hemorrhage the writer can testify.

Another method that may sometimes be employed is pulling down the cervix by means of the vulsella, to the outlet or even farther. The vessels are put on the stretch and, being spirally wound, their lumen is thus cut off. Preparatory to sewing up the cervix this method may be useful, but it may be used alone and for atony in appropriate cases. In one case a physician in the country thus held a hemorrhage in abeyance for two hours, till aid could be gotten from a neighboring town.

The sovereign remedy against hemorrhages that come from atony of the uterus, as well as those that come from lacerations involving the large vessels, is the tamponade of the uterovaginal tract. The writer must express gratitude to Dührssen[6] for having placed in our hands this effective method for meeting a painful emergency. The method may be used when the foregoing ones have not stopped the bleeding definitely, or when the gush of blood is so great that a few moments will jeopardize the patient, and it should be employed in all cases before the woman is exsanguinated; not as a last resort. It is important to save the woman as much blood as possible, because the convalescence is not so tedious, and complications in the puerperium, as heart clot, embolism, fever, not so common. Women often carry the effects of a great loss of blood for years.

The method is simple. The anterior lip of the cervix is grasped with a vulsellum forceps and given to an assistant, the posterior lip being likewise held by the operator. With a long uterine packing forceps, the uterus is packed tightly from the fundus down, with gauze from a jar held near the vulva, or from a roll held in the same hand that holds the posterior lip, in the absence of some one to hold the jar. Three to five yards one yard wide may be used, sterilized, borated, or washed out in iodoform, as preferred. The writer uses plain or borated gauze wrung out of lysol solution.

After packing the uterus the vagina is packed also, using cotton, and tightly. The uterus does not expand and fill up with blood. In two cases, however, a slight oozing took place through the tampon, which, though not dangerous, seemed undesirable and to be avoided if possible, so the writer, acting on a suggestion received somewhere in Vienna, did the following: After packing as much gauze into the uterus as it would hold—three to five yards—the two lips of the cervix were brought together over the tampon, by the vulsella, and sewed together tightly, completely closing up the uterus. In two cases in which this was done the effect was immediate, but as an additional precaution the vagina was also packed. In twenty-

[6] Dührssen; Die Utero-Vaginal Tamponade mit Iodoformgaze bei Postpartum Blutungen. Berliner Klinik, Heft 75.

four to thirty-six hours the vaginal packing was removed, likewise the stitches in the cervix. The uterine tampon was left for another twenty-four hours or two days, when it also was drawn out gently, a little at a time. This is the first time to my knowledge that this operation has been published in this country, and it certainly deserves further trial.

Thus far but little has been said about finding out what causes the hemorrhage, atony or laceration. In the kind of hemorrhages under consideration there is no time for this; to stop the bleeding is the first duty of the attendant. He may at once see where the flow comes from and direct his energies there. If assured that uterine action is deficient, massage, compression of the uterus, a hot, 120F. douche, the use of vinegar, the tampon, may be employed in order, or as may be governed by the urgency of the case, always remembering not to wait with the most efficient means of all—the tamponade—till it is too late.

A cervical laceration should be sewed up, if there is time; if not, one should tampon the whole parturient canal. Ergot is given in all cases, but one should not wait for it or trust to it.

Success in stopping the hemorrhage is defeated if the patient dies of the loss of blood, so that together with the above treatment one must employ measures to combat the anemia. The remedy here is par excellence, .6 per cent. salt solution, either under the skin or injected into a vein; 116 ounces, nearly a gallon, have been injected in a few hours, with the most happy effect. Among the hypodermic stimulants, camphorated oil and strychnin are most worthy of confidence. Ether should be injected only to tide the patient over a dangerous syncope. The foot of the bed should be raised as soon as the patient may be left alone, the body being inclined at an angle of 25 degrees. She should be kept warm by means of external heat and by not being exposed more than is absolutely necessary. Hot coffee, water and wine should be given by mouth, and saline solution per rectum; if the patient is tamponed the bowel will hold two quarts, and it is absorbed with surprising quickness.

By these measures the total amount of the blood can be rapidly brought nearly up to the normal, but if the woman has lost more than one-half of her oxygen carriers, the red blood-corpuscles, she will usually die. It takes weeks and months to replace these. It has often occurred to the writer that human blood ought to be injected into these women, and since the inevitable clotting has heretofore prevented this, why not mix it with saline solution and inject the mixture? Professor Hall of the Northwestern University Medical School, is now experimenting on this suggestion, and as soon as the results on dogs justify it the procedure will be tried on the human. Thus far the experiments have had little success.

In conclusion, the writer desires to briefly report five cases of postpartum hemorrhage exemplifying these modes of treatment:

Case 1.—Mrs. X., observed at the Cook County Hospital, IXpara, O. L. A., in labor 48 hours. In the absence of any disproportion between the head and the pelvis, after complete dilatation, because of weak pains, head not engaged, axis traction forceps were applied. Delivery was accomplished easily, the child living, but immediately after, with the expulsion of the placenta, a great rush of blood almost arterial in color occurred. Prompt, firm compression of the aorta by Dr. A. R. Edwards, assisting, checked the hemorrhage at once, till a hot douche could be prepared, which, combined with external and internal massage, produced uterine contraction. The compression was kept up for about ten minutes without damage, certainly to the benefit of the patient. The uterus even then did not contract well but filled up with clots, which were expelled on the next day, over a pint in amount. The patient recovered slowly from her anemia.

Case 2.—Mrs. S., Italian, observed in the service of the Chicago Lying-in Hospital Dispensary, October, 1896, Xpara, aged 38 years, has had difficult deliveries, the last being operative by the writer, pendulous abdomen, breech extraction. This labor has lasted three days, pains weak, head movable in the inlet, no disproportion between the child and the pelvis, cervix completely dilated but hangs down like a cuff, loosely. Axis traction forceps applied, easy delivery; child slightly asphyxiated but recovered. While attending to this a furious hemorrhage occurred and blood poured out as from a pitcher. The left hand immediately grasped the cervix, the fingers closing it from all sides, while the assistants, Drs. Shanks and Bluhm, forced the uterus sharply down on the hand. While doing this the child was resuscitated by the other hand and soon the uterus gathered itself together into a firm contraction which effectually stopped the hemorrhage. It was only the promptest action that saved this woman's life. A hemorrhage of such severity could not last over thirty seconds and the patient survive.

Case 3.—Miss X., Ipara, aged 21 years, was observed in consultation with Dr. Mattheson, July, 1897; albuminuria, general anasarca, probably a chronic nephritis; O.D.P., slow, tedious, exhausting labor, head rotated to transverse diameter; easy forceps delivery; living child; slight perineal laceration; profuse hemorrhage; placenta expressed by a hard Credé. Hemorrhage continued severe, coming from the uterus, from a deeply lacerated cervix—the cervix had retracted over the head—and from the perineal tear. Two vulsellum forceps were put on the cervix and it was drawn to the vulva, which checked the hemorrhage slightly; then a large perineal retractor was placed in position. Owing to the field being constantly filled with blood it was impossible to see anything, and the blood could not be sponged up quickly enough to see where to pass sutures. Something had to be done quickly. The cervix was pulled down, and then pressed against the large perineal retractor by means of a gauze packing pushed well into the anterior fornix. It was left thus for fifteen minutes, the uterus being closely guarded the while, and then the gauze and vulsella gently removed, great care being taken not to disturb the parts. The bleeding had ceased. The perineum was then repaired and the patient made a slow but good recovery.

Case 4.—Wife of Dr. K., Ipara, aged 22 years; three weeks over time; great abdominal distension; marked panniculus adiposus; labor, December, 1898, lasting thirty-six hours; pains irregular and weak; pelvis normal; child very large; O. L. P., arrest in the transverse diameter, cervix effaced, os size of the palm. An urgent indication for the termination of labor being present, on the part of the mother, the cervix was stretched with the fingers, but, as it tore, it was incised three-quarters of an inch on each side; hemorrhage moderate; forceps, rotation prompt and not forced, cervix retracting easily and gently above the head, which was delivered without difficulty; shoulders gave great trouble; episiotomy; child living, weighing 11¼ pounds; slight bleeding during the third stage, and when the placenta came, eight minutes later, there was quite a gush of blood.

While threading needles for the perineum a furious hemorrhage occurred; blood poured out in a thick stream as from a faucet, and with a rushing noise audible to the bystanders. The cervix was immediately grasped in the manner described and the uterus was massaged and compressed from above, by Dr. Todd; no appreciable effect; two vulsella on the cervix and downward traction; no effect, blood welled out from the cervix in a deep red lake. One bleeding artery could be caught in the anterior lip of the cervix, but the body of the blood came from the uterus, probably from laceration of some large blood-vessel, but there was no time to hunt for it, so the uterus was packed with gauze, three and one half yards one yard wide being used. Blood still flowed briskly along the tampon in spite of its tightness, so the cervix was sewed together over the gauze, closing the uterus up completely. Now the vagina was perfectly dry, but as an additional precaution, it was also packed lightly.

The patient was severely shocked but recovered after vigorous stimulation. The packing of the uterus and the sewing of the cervix were apparent to all present life-saving. The gauze and sutures were removed at the end of twenty-four hours; no hemorrhage. The patient had a peculiar run of fever, the diplococcus of pneumonia being found in the lochia, but recovered.

Case 5.—From the service of the Chicago Lying-in Hospital

Dispensary, February, 1899; Xpara, flat, rachitic pelvis, always difficult labors; general state of health poor; shoulder presentation, hemorrhage, partial premature detachment of the placenta; version, extraction, laceration of the lower uterine segment, severe postpartum hemorrhage, which came from the uterine atony as well as from the laceration; manual removal of the placenta, laceration and vagina packed; patient's condition critic, writer summoned; patient still oozing, pulse thready, 80, extreme anemia and shock; gave two quarts of salt solution under the breasts, and after reaction had been partly established the packing was removed. This started a violent arterial hemorrhage from a deep lower uterine segment laceration, which did not stop with any of the means employed till both the uterus and cervix were tightly plugged with gauze. Then there was a slight oozing through the tampon, so the cervix was sewn over the tampon as in the last case, and the vagina also packed tightly, six square yards of gauze being used.

The woman almost died on the table. Nearly two quarts more of salt solution were injected under the skin, the vessels absorbing it greedily. Two quarts were given per rectum and the patient carefully stimulated. She was in a critic condition for four days. At the end of thirty six hours the vaginal packing was removed, also the sutures in the cervix. The bleeding started up again when the gauze in the uterus was disturbed so this was left till the next day, when it came without trouble. The patient had no fever and is just getting up. Her convalescence will be tedious.

The removal of the gauze is an important matter, and one should be well prepared to pack and sew again if necessary. In New York a patient was lost at the time of the removal of the gauze in a case quite similar to the above.

3634 Prairie Ave.

EXTRAUTERINE (TUBAL) PREGNANCY.

WITH RUPTURE OF SAC; REPEATED HEMORRHAGE; LAPAROTOMY; CONVALESCENCE COMPLICATED BY SECONDARY ABSCESS OF THE LIVER; TRANSPLEURAL HEPATOTOMY; RECOVERY.

BY RUDOLPH MATAS, M.D.

NEW ORLEANS, LA.

The reports of cases of ectopic pregnancy that have been successfully treated by direct surgical intervention while in the grave collapse that accompanies the rupture of the sac have been so frequent of recent years that they have lost even the merit of novelty. In fact, the literature of the subject is so saturated with clinical and pathologic reports, which bring into relief every phase of this condition, that it is not surprising that the instruction to be derived from the record of individual cases is well-nigh exhausted. Nevertheless, it is not improbable that the mere record of results in operated cases has some value from a statistic and collective point of view, even if only to illumine the prognosis and encourage the surgeon in interfering and hoping for recovery when confronted by the most desperate and apparently hopeless conditions. The present instance, however, is contributed more especially to direct attention to a complication of very exceptional occurrence—judging at least by the universal silence of recent authors and operators—and yet of such gravity and importance as to justify its consideration as a possible, if rare, factor in the clinical history of the subject.

The complication referred to is an acute circumscribed suppurative hepatitis, apparently the result of portal infection starting in the intestinal walls or, possibly, though not probably, in the peritoneum itself. It is evident that this complication is not peculiar to the convalescence or clinical history of ectopic pregnancy, but may occur in any form of septic peritoneal traumatism associated with intestinal paresis, and more particularly, as in this case, when a septic entero-colitis with putrid stools occurred following immediately after the intestinal stasis of peritonitis.

On Dec. 19, 1897, I was called by Dr. M. Herman to examine Mrs. P., an employe of a well-known tobacco factory in this city. I obtained the following facts preliminary to my examination: The patient, a married woman, white, about 30 years of age, a native of this city and of German parentage, has always enjoyed good health and has been married several years. Her husband is a healthy man of about her own age. She has been pregnant three times before the present conception. The first child is living and well; the second died two months after birth, from some obscure nervous trouble. She had a miscarriage subsequently. Her present trouble dates with the suppression of menstruation, which took place about twelve weeks previous to this visit. The patient believes that she is pregnant. Apart from the suppression of the menses she noticed no change in her health and attended to her usual duties at the factory until two weeks ago, when, in the evening, while walking in the street, from the factory to her home, she was taken suddenly ill with an acute abdominal pain in the hypogastrium. This pain was accompanied by great prostration, dizziness, a sinking feeling, faintness, cold sweat and a deathly pallor which was noticed by those who accompanied her. She was in a state of collapse when picked up by her friends, who put her in a cab and took her home. At home, she was attended by a neighboring physician, who administered morphia, atropia and restoratives. She finally rallied, but regained strength very slowly, always complaining of pain and tenderness in the lower abdominal region. She had discharged her medical attendant and was preparing to return to her post in the factory, when (December 18) she was again seized with violent abdominal pains and great prostration.

It was then that Dr. Herman, the physician of the factory, was called to attend her, and found her in a collapsed condition, with cold, clammy skin, subnormal temperature, weak, thready pulse, widely dilated pupils and a colorless and exsanguinated appearance. The abdomen was considerably distended, especially in the hypogastric region, with great tenderness over the swollen area. Vaginal examination was unsatisfactory; the uterus was displaced downward and to the right, fixed and immovable; the posterior cul-de-sac was distended by a semifluctuating mass that filled the pelvis. Dr. Herman was convinced that he was dealing with a ruptured ectopic pregnancy. The next day, December 19—two weeks after the first signs of rupture—I examined the patient and found her condition improved. There were signs of a general peritoneal reaction. Abdominal tenderness and distension was more marked, but there was no acute pain, no vomiting; temperature was 99.8, pulse 120, very compressible, but evidently responding to the digitalin and strychnin given since the previous day. A vaginal examination confirmed the results obtained by the attending physician. There was evidently a semisolid mass which jammed the uterus downward toward the pelvic outlet and filled the pelvic cavity, projecting to the level of the iliac crest on the left side. The general appearance of the patient was that of a profound anemia; the skin was colorless, the conjunctivæ were exsanguinated, the lips were blanched and the hands

waxy. We feared that she could scarcely stand removal to a sanitarium, but finally concluded to take the risk, in view of her exceedingly unfavorable surroundings for operative treatment.

The patient was admitted to the N. O. Sanitarium December 20. She was so weak and exhausted that we feared that she would never be able to survive an operation. She was at once warmed up in bed, after which ice-bags were applied to the lower abdomen. Strychnin was given hypodermically, and the bed was tilted high up at the foot to diminish pelvic engorgement as well as favor the cerebral circulation. She was constantly watched by the nurse in charge, who administered frequent but small doses of peptonized milk, panopepton and hot tea, at frequent intervals. The nurse was soon able to report that the pulse had improved.

The next day, after thorough preparation, an exploratory puncture into the swelling was made through the posterior vaginal wall and a syringeful of pure blood was quickly aspirated. This examination also showed that the tumor had not increased. Diagnosis of pelvic hematocele, caused by ruptured tubal pregnancy, was confirmed, and we decided to operate, but not immediately, preferring to wait a little longer for further improvement in the patient's condition. The peril of delay was thoroughly appreciated, but the risk of operating in so deplorable a condition appeared to us still greater, and we temporized. We were also encouraged in this course by the evident arrest of bleeding.

On December 21, while a hot douche was being administered, the patient passed a complete cast of the uterine cavity, evidently the decidual membrane. The expulsion of this membrane was attended by colicky pain and some bleeding. The picture of abortion was complete except that no embryo had been expelled. The patient herself believed she had aborted, and expressed herself as being much relieved by the occurrence. She also explained that her first attack of abdominal pain and prostration coincided with the usual date of her menstruation.

From December 20 to 24, nothing was done except to observe and strengthen the patient. The urine, which was normal, was kept diluted by drinking large quantities of pure water; the bowels were moved regularly by enemata and saline aperient draughts; the amount of putrid material in the intestinal canal was reduced to a minimum by a careful laparotomy diet, consisting largely of milk, cereals and cooked fruits. Strychnin in 1/40-grain doses was kept up steadily every six hours. Under these conditions her strength and spirits improved decidedly. The temperature remained at 100 F., pulse 117, and pains were being subdued, when, on December 24, the whole aspect of the case again changed for the worse. The pulse became suddenly more rapid, the pallor more marked and the tumor above the pelvic brim rose higher. The tension in Douglas' cul-de-sac became greater than ever before, and the pains in the hypogastrium grew intolerably acute. It was evident that the time to act had come, and we decided to operate that evening.

After thorough irrigation the uterus was curetted and packed with iodoform gauze. The right arm was also prepared for intravenous saline infusion, the median basilic vein being exposed so that no time would be lost in injecting the saline solution which we had every reason to believe would be required in the course of the operation. A preliminary hypodermic of 1/40 gr. strychnin and 1/100 digitalin, was also given before beginning with the anesthetic. A few drops of chloroform were first given in an Esmarch inhaler, after which the anesthesia was continued with ether.[1] The patient was placed in the Trendelenburg position. A median incision four inches in length was made and subsequently enlarged to five inches. The peritoneum, which was very tense, bulged into the wound.

Upon dividing the serosa, a dark membranous mass which resembled a cyst appeared. The mass was adherent on all sides, but was well defined above where it was attached to the omentum. Not knowing exactly what it was, I decided, before attempting further manipulations, to tap it with a trocar, but only a little blood came. An effort was then made to detach it by inserting the hand into the wound, but the adhesions were so intimate with the abdominal wall that I had to incise it by cautiously cutting into it in the median line. After penetrating through a thick cortex of exudates and fibrinous layers—for this they turned out to be—a large quantity of clotted and liquid blood gushed out. The hand was now introduced into the cavity of the pseudo-cyst and its true nature was at once clearly recognized. It was simply a vast hematocele which filled the pelvis, forming an irregular ovoid, the center of which was occupied by the uterus and left Fallopian tube, or at least what remained of it. Its upper boundaries were formed by the intestinal mass, which had been displaced upward to the level of the umbilicus, where a wall of soft and recent adhesions with the omentum and exudates excluded the general peritoneal cavity. After scooping out by handfuls over three pounds of fresh clot and blood, the remnants of the left Fallopian tube were clearly recognized. A large mass of thick membrane was now felt and peeled off, with an attached layer of dense fibrinous exudate, from the center of the left broad ligament, in which it appeared to be fixed and buried. The Fallopian tube, as stated, existed only in fragments; its central part had evidently been distended, and was continuous with the corresponding broad ligament, with which it formed the irregular torn wall of a large cavity filled with blood and exudates. The appearance of the parts plainly indicated that a primary hematocele had existed in the tube, and that this had ruptured secondarily into the broad ligament, the third rupture taking place in the posterior surface of the broad ligament through a large ragged aperture from which the blood and ovum had ultimately escaped into the general pelvic cavity. The walls of the cavity thus formed by the broad ligament and adherent tube were very edematous and friable. The uterine pedicle of the tube was very soft, and so friable that it was cut through completely whenever a ligature or traction was applied to it. For this reason a ligature was applied directly to the uterine cornu itself. Another ligature was applied to the ovarian end of the tube. The left ovary was recognized with some difficulty, and enucleated out of a bed of dense adhesions and thick exudates which formed part of the adventitious sac to which the ovum and its membranes had been attached. There was no recognizable embryo, only a pseudo-placental mass which was peeled off from the interior

[1] Drs. Larue, Gessner and Delaup rendered most valuable assistance in the operation; the sanitarium corps of nurses also gave very effective aid, and it is due, in a great measure, to their constant care and unfailing vigilance in the after-treatment that the patient finally recovered.

of the sac formed by the left broad ligament. The walls of the large adventitious sac were adherent to the sacrum, rectum and small intestine posteriorly, and pieces of membrane had to be left attached to these parts for fear of perforating the bowel while attempting to remove them.

The upper limits of the hematoma, or rather of the exudates that encapsulated it, were attached to the abdominal walls and bladder anteriorly, reaching as high as the umbilicus; posteriorly, the promontory of the sacrum marked the upper boundary. The uterus, which was enlarged to the size of a three-months gestation, projected in the center of the hematocele and was covered with fibrinous deposits and pseudomembranes. The right broad ligament was very much distended and its corresponding tube was displaced upward by an intraligamentous cyst as large as a cocoanut. This cyst also contributed to displacing the uterus upward and forward. A ligature was also applied to the right cornu of the uterus and another at the ovarian pedicle, after which the right tube was excised. The cyst in the broad ligament, which contained a clear, straw-colored fluid, was tapped, then excised freely and packed with iodoform gauze. A great deal of blood serum and blood oozed out of the cavity in the left broad ligament, compelling a very thorough packing with iodoform gauze on the Mikulicz plan.

In the meantime, the patient showed signs of great exhaustion; respiration very rapid, the pulse rose to 160 and became almost imperceptible at the wrist. Ether was stopped, ammonia applied to the nose and the pelvis was thoroughly flushed with hot saline solution poured in with a pitcher and used as a restorative as well as for the purpose of washing out fragments of clot and tissues. Simultaneously, 50 ounces of decinormal saline solution were injected into the basilic vein. Immediate improvement followed the intravenous infusion and the pulse fell to 112, when it was discontinued. All provisional gauze packs were now removed from the abdominal cavity and the Mikulicz tampon, very systematically applied, was resorted to instead. The peritoneum was closed with continuous catgut suture, leaving space for the drain. The patient was put to bed at 4 P.M., one hour and a half after the abdominal section had begun.

The first record after the patient reached her room shows a pulse of 130-140, but of fair quality.

December 25: Temperature 101, pulse 144, fairly good quality; very free drainage from wound, requiring complete change of dressings; nausea and occasional vomiting. The following rectal enema was given every four hours: beef juice ℥i, whisky ℥ss, tinct. digitalis ♏x, decinormal saline solution ℥vi, every four hours. Hypodermically: strychnia nitrate 1/40 gr., digitalin 1/100 gr., every four hours; chopped ice occasionally, alternating with sips of hot water every hour to assuage thirst.

December 27: Temperature was 102, pulse 128; considerable tympanites; no bowel movements, but some gas passed after repeated turpentin enemata.

December 28: Calomel and soda triturates, āā 1 gr., were given by mouth every hour, with small drinks of dilute champagne, iced; after ten of these had been taken a small movement of the bowels was obtained, with some relief of the tympanites.

December 29 (fifth day): Mikulicz drain removed; copious enemas of turpentin, repeated frequently, to expel gas and relieve abdominal tension; temperature 101, pulse 114.

December 29 to January 8: Diarrhea with some tenesmus took the place of the constipation, the patient having as many as five and six movements daily. The stools were copious, watery, pale and fetid. The temperature oscillated from 101 to 102.8, but the pulse showed a tendency to become slower, 108-106; respiration 28.

January 7 (thirteenth day after operation): Abdominal wound doing well; all sutures had been removed, small gauze drain left in wound, but patient complains of *dull pain in right hypochondrium*. Temperature 102.4, pulse 106; bowel movements checked by bismuth subnitrate, but during the night profuse perspiration followed by fall in temperature to 100. The patient now nourishes fairly well; liquid and semisolid food retained.

January 7 to 12: Hectic fever was marked, the temperature rising to 102.8, pulse 120 and respirations 48, followed by profuse sweating and remission at night; pain in hypochondrium continues, area of hepatic dulness increases and it is decided that suppurative hepatitis from bowel infection exists. Diarrhea is now checked, but stools continue fetid. In the meantime the right side of chest and hepatic region has been kept covered with ice-bags, which apparently give relief to pain, but do not perceptibly diminish the size of the liver, which projects about three inches below the costal arch in right hypochondrium.

January 12 (nineteenth day after laparotomy): Aspirated (Potain's aspirator) over two pints of a watery, serous pus, herring-sauce color, odorless. The needle was introduced in the eighth interspace and penetrated 3½ inches before reaching pus. A specimen was preserved in culture-tubes and submitted to Dr. Pothier, pathologist of the Charity Hospital, who, in a few days, reported that he had been able to obtain pure cultures of a long chain coccus. In this way the streptococcal nature of the hepatic infection was established. Hectic ceased after this aspiration; all symptoms were much relieved. Temperature fell to 99.6, pulse 100, respirations 26; ice bags continued to chest and hypochondrium. The improvement was maintained for several days; patient was out of her room in rolling chair and in good spirits; nourished much better.

By January 25 (thirteenth day after aspiration) the temperature had gradually risen again to 101, pulse 100, respirations 30, and the liver area again increased in size.

January 25: The needle of the aspirator was introduced in the ninth interspace, in the anterior axillary line and one pint of yellow, creamy pus was aspirated. The ice-bags to right chest and hypochondrium had been kept up, with no other effect than to relieve pain. The bowel movements were controlled; abdominal wound nearly healed except at small drainage point, where a sinus remained.

February 1 (nineteenth day after first aspiration of liver): In view of persisting temperature with returning tendency to nocturnal sweats, decided to open liver freely. Under Schleich local anesthetic mixture (Formula No. 2), 3½ inches of the ninth rib were excised; the right pleural cul-de-sac was found obliterated and the abscess in the liver opened freely, the incision through the cortex of the liver, corresponding in length to the external incision. The liver was adherent to the diaphragm. The cortex of the liver, which held the abscess cavity, was nearly two inches thick. Over one pint of thick pus and slough flakes were removed through the incision, after which the liver was firmly anchored to the intercostal spaces and skin by deep sutures passed into the cavity of the abscess with the Reverdin needle. The abscess cavity was swabbed with large gauze packs soaked in hydrogen peroxid, to remove loose sloughs. The cavity was then packed systematically with large strips of iodoform gauze, over which was applied an abundant iodoform gauze and plain sterile dressing. The temperature rose to 102.8, pulse 126, respiration 36, the next day, but after this steadily declined little by little, until January 13, when it became normal, with pulse 86 and respiration 20. The tampon in the liver was not removed until the thirteenth day after the evacuation of the abscess, as it had remained sweet; odorless up to this time. Only the outside dressings were changed. When the tampon was removed the cavity of the liver was found clean, presenting a healthy granular appearance and necessitating only a comparatively small drain. The patient continued to improve and left the sanitarium Feb. 28, 1898, sixty-six days after laparotomy and twenty-eight days after hepatotomy.

Synopsis.—The patient had missed menstruation six weeks before first intraperitoneal hemorrhage, which took place Dec. 5, 1897; second hemorrhage Dec. 19, 1897; laparotomy with extirpation of ovum and tube, December 24 (or nineteen days after first rupture); Jan. 12, 1898, first aspiration of pus from liver; January 25 (thirteenth day after), second aspiration of liver; February 1, hepatotomy; February 28, patient left sanitarium convalescent, i. e., sixty-six days after laparotomy for ectopic pregnancy, twenty-eight days after hepatotomy for abscess of liver, and eighty-five days after first signs of intraperitoneal hemorrhage.

Conclusions.—The history of the case and the anatomic conditions revealed by operation lead to the following conclusions:

1. That ectopic pregnancy reaching nearly up to the third month of gestation existed in the left Fallopian tube.

2. That some time after the second month the tube ruptured into the corresponding broad ligament, forming an intraligamentous hematocele.

3. That the hematocele continued to increase until it also ruptured into the general peritoneal cavity, where the hemorrhage became partially encysted, forming a large intraperitoneal hematocele.

4. Coincidently or prior to the ectopic pregnancy an intraligamentous cyst formed in the opposite broad ligament.

5. The value of intravenous saline infusion was demonstrated in tiding over the dangerous crisis caused by shock and hemorrhage during the laparotomy required to extirpate the sac, evacuate the blood collection and secure the vessels.

6. Septic bowel infection following the intestinal paresis of a moderate (limited) postoperative peritonitis.

7. Septic infarct of liver through portal vein as a consequence.

8. Aspiration of liver and removal of typic streptococcal pus.

9. Free hepatotomy after resection of ribs, followed by final and complete recovery.

NAPHTHALIN IN TYPHOID FEVER.

A REMEDY IN PREVENTING INTESTINAL PUTREFACTION AND TYMPANITES.

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At the present time, when the cold-bath treatment of typhoid fever has proven to be of such inestimable value in reducing the death-rate of this scourge of humanity from that of former days, it seems almost unnecessary to speak of any other agent than cold water in controlling the clinical manifestations of enteric fever. Since we have become able for the most part to hold in check the chief disturbing factors, such as fever, nervous exhaustion, and overpowering of the circulatory system by this medium, it is customary to lay but little stress upon any other agent in restoring health to those who suffer from this disease.

If one considers the most important symptoms or complications which require remedial measures, besides those above enumerated, it may be stated that they are meteorism or tympanites, diarrhea, hemorrhage from the bowel and peritonitis. A small excess of gas in the bowel, over that of the normal, is necessarily an accompaniment of a disease located for the most part in this region, and existing to such an extent in this disorder that in a series of 112 cases of typhoid fever at the Hospital of the University of Pennsylvania, Tyson met with the condition in 85 per cent. of the number treated. Under ordinary circumstances slight tympanitic distension of the abdomen calls for no direct medication, usually depending upon undigested food which, upon being corrected, induces relief of the symptom.

No one can safely deny at the present time that the tendency is to give few drugs in cases of typhoid fever, nor can it be denied that overdrugging does harm. For instance, J. C. Wilson has recently treated a series of 147 cases of typhoid fever at the German Hospital, Philadelphia, by the cold-bath treatment, a liquid diet and few drugs, with a mortality of 3.4 per cent. At the Hospital of the University of Pennsylvania, under the same plan of treatment, Tyson's mortality in a series of 112 cases was 4.5 per cent.; and at the St. Agnes Hospital, Stahl reports a death-rate of 2.8 per cent. out of 144 cases. In most of these cases the complications were few and required no medicinal agents for their relief, yet it would be unfair to cast aside the records of other hospitals in which the mortality was greater than the figures above quoted. Taking the city as a whole, the mortality for the past five months has reached a fraction above 9 per cent.

In private practice the facilities found in well-equipped hospitals can not always be had, and tympanites with diarrhea is a not uncommon occurrence. In many instances there may be found deep ulcerations in the bowel, and any kind of food may undergo fermentation and putrefaction, giving rise to distension of the parts to such a degree that diarrhea, hemorrhage from the bowel, or perforation may ensue. If excessive tympanites exists, not only are these dangers imminent, but the respiratory and circulatory functions may also become embarrassed.

It has been more than once demonstrated that it is absolutely impossible to sterilize the intestinal tract in the human species, and it must be admitted that at the present time there is no ideal intestinal antiseptic. Those which have been used with more or less favor are well known. The trouble with a great many of them is that they are too soluble and, being so, become absorbed or chemically changed long before they reach the focus of disease. If we had a reliable intestinal antiseptic that would limit the number of pathogenic micro-organisms in the smaller intestines, the natural defenders of the body—polynuclear leucocytes with their contained nuclein, fixed endothelial cells, the epithelial cells, the mucous membranes, glandular secretions, the power of neutralization and a certain amount of reserve force—would, no doubt, in the majority of instances, decide favorably the combat against those few micro-organisms which have already gained entrance into the circulatory system.

In order to eliminate all the fallacies which might occur in presenting evidence regarding the beneficial treatment of the disease, Stengel has quoted from a statistician who stated that from a mathematic calculation a series of 8000 cases should be presented before any irrefragable conclusion could be deduced.

While not extolling the virtues, nor decrying the evils, of other remedies that have been given for the purpose of limiting the amount of putrefaction in the intestinal tract during the course of typhoid fever, I desire to report that in eight unselected cases of this disease treated during different years, and to which cases naphthalin had been given, there was but slight distension of the bowel in any case, and hemorrhage occurred in none. In at least one case gaseous distension seemed to be relieved by the use of naphthalin. In all these cases fractional doses of calomel were given at the onset, and cold baths, when possible, every time the temperature rose above 102.4 F. A liquid diet and use of the bedpan were of course strictly enjoined.

As a rule, naphthalin was begun within the first day, or from the time the patient was first seen, and was repeated one or more times throughout the course

of the disease. It was given in powder or capsule, in doses of from 5 to 10 grains (according to age), and repeated every three hours if the patient was awake, day and night for two days. (In some cases it was continued for three days.) In the case of adults, doses less than 10 grains did not appear to do much good. In no case did the drug seem to act as a cardiac depressant, the pulse generally being somewhat slow, regular, and of good volume; nor did any troublesome complication ensue from its use. In the majority of instances, at the expiration of two days from its first administration, baths did not seem to be required as frequently as in many cases which I have treated without the use of this remedy.

The fact that the temperature does not seem to be controlled by the drug is an indication that it does not act upon the thermogenic centers. Frequently gaseous eructations occurred, but it did not appear to disturb the digestive functions, and, judging from the condition of the tongue, it seemed rather to be improved under the administration of naphthalin. Vomiting occurred twice in one of the cases, the first time doubtless being caused by taking the medicine with milk, the second time from taking the drug shortly after the milk had been given. One should be careful to select only the purest form of the drug, as the impure product causes burning at the neck of the bladder, supposed to be caused by naphthosulphurous acid (Wolff). In all cases the urine was turned quite dark in appearance after its administration, but the amount of the urine did not seem to be diminished. No symptoms of nephritis ever developed.

Naphthalin (naphthalinum, naphthalene) is described in the "United States Dispensatory" (seventeenth edition) as follows: "Naphthalin is a hydrocarbon having the chemic formula $C_{10}H_8$. It is a white, shining crystalline substance soluble in chloroform, carbon disulphid, ether, naphtha and the oils, but insoluble in water. A good test for the purity of naphthalin is to warm a little of it in a test-tube with sulphuric acid. As little as 1 per cent. impurity will be indicated by its imparting a pinkish tint to the sulphuric acid; the depth of the color indicates the degree of impurity." Its medical properties are given as follows: "Naphthalin is possessed of antiseptic properties, and is poisonous to most fungi and probably most insects. First employed by Rossbach of Jena, in intestinal catarrh, it has been largely used in all forms of intestinal inflammation and in typhoid fever."

In all the cases of typhoid fever and other diseases for which it has been given by others, I believe one death has been ascribed to the use of naphthalin. As a great many cases of typhoid fever need no medicine of any kind after the first few days, it seems that the drug is specially indicated at the onset of tympanites; when paralysis of the bowel occurs from overdistension, it could do no good. Bouchard states that after its administration he has found in the urine a body for the most part composed of sulphur resulting from the combination of naphthol and sulphur, a naphthosulphurous acid, which may be classed as a naphthosulphite of soda. This could only have occurred by sulphur having been borrowed from the organism, i. e., by destroying albumin or nitrogenous matter. In all cases in which naphthalin is given in moderate-sized doses, its odor can be easily detected in the urine and feces. I paid particular attention to the condition of the urine in two cases of typhoid fever, throughout the course of the disease, for the purpose of ascertaining whether or not any irritation of the kidneys ensued from the use of the remedy, and the following facts were noted:

Case 1.—A. F., white, male, aged 9 years, had suffered from scarlet fever in 1893, measles a year later, and whooping cough three years ago. The patient began to lose appetite and lounge about the house on November 15, and complained of headache, loss of appetite, nausea and chilly sensations. The bowels had moved once daily. There had been no epistaxis. On November 17 the cheeks became flushed, and the patient was first seen on November 18, at which time the temperature was 103.6 F. He was given calomel in fractional doses, and in addition 5 grains of naphthalin every three hours, the latter being continued until the evening of November 25. On November 28 a specimen of blood from the lobe of the ear yielded a positive Widal reaction. November 29, the bowels had moved several times by epsom salts November 25 and 26, and by an enema on November 28. The urine had been clear (?) for several days and the patient passed about 1000 c.c. of urine daily.

November 29 the urine was examined. The amount was about 1000 c.c., amber in color—slightly tinted darkish from naphthalin—reaction highly acid, specific gravity 1018, no albumin, but there was a slight reddish zone at the point of contact with the nitric acid, and a moderate amount of indican. The nitroprussid test detected no indol. The sediment contained abundant urates, uric acid, granular débris, and a few leucocytes. There were no casts, nor red blood corpuscles, when examined by $\frac{1}{12}$ oil-immersion lens and No. 4 oc. (Leitz).

While the following method for the estimation of indol is not recommended as furnishing exact results, it was employed for the purpose of obtaining an index to the relative amount of this product. About 4 grams of a hard particle of the feces was selected and agitated thoroughly with about 24 c.c. of hot water and filtered, about 12 c.c. of filtrate resulting, having a straw color and characteristic fecal odor. The sodium nitroprussid test for indol proved unreliable, as the following results show: Filtrate (as above prepared), 3 c.c.; solution sodium nitroprussid (2 grams to 4 c.c. of water), 0.3 c.c.; solution of soda, 0.2 c.c.; acetic acid, 0.7 c.c. Upon the addition of the sodium nitroprussid to the filtrate a brownish tint was given to the fluid (probably due to the nitroprussid itself), and upon the addition of acetic acid it turned still darker in color, but did *not turn violet nor blue.* A specimen of normal feces similarly prepared failed to yield the violet or blue color, as did also a freshly prepared alcoholic filtrate from normal feces. The reaction was not tried with a distilled product.

November 30, 5 grains of naphthalin were given at 5 P.M., and repeated three hours later, and on December 1, and to the evening of December 2, 5 grains were given every three hours as far as possible, day and night. Thus 130 grains had been taken at the time the urine and feces were selected. The urine amounted to about 1000 c.c., was blackish in color, of the odor of naphthalin, highly acid, specific gravity 1020, and showed indican greatly *decreased* over that of November 29. There was no albumin, glucose nor acetone, and no casts.

The bowels had moved on December 1, and were again moved by enema on December 3, a portion of which was obtained for examination. As the nitroprussid test without distillation had proven unsatisfactory, the following method was tried and gave approximate results. After obtaining the filtrate from the feces, in the same manner as in the first method above, the following test was made: nitrous acid 0.7 c.c.; nitric acid (C.P.) 2 c.c. To 4 c.c. of the filtrate in a test tube there was added 0.5 c.c. of the acid solution. On adding two or three drops, quite slowly, a turbidity or cloudiness was produced; gradually adding the acid solution until 0.5 c.c had been used, the filtrate immediately assumed a light reddish tint most marked at the bottom of the test-tube. On standing five or ten minutes the fluid assumed a deeper reddish color, which I notice at the end of three months has remained permanent. At the end of twenty-four hours a faint blue or grayish sediment was deposited.

The following test also gave the color reaction for indol. A filtrate was prepared from feces in the same manner as above outlined, and to 4 c.c. of the warmed filtrate were added 0.7 c.c. dilute sulphuric acid and 1.4 c.c. of the following solution: amyl nitrite (one glass bead containing 0.3 c.c.); alcohol 30 c.c. On adding the nitrite solution a light reddish color was immediately produced, but became more brownish on standing five or ten minutes. A filtrate produced with alcohol yielded a darker or mahogany-red color with the amyl nitrite test. Comparing the results with that obtained from an examination of normal feces made at the same time, there seemed to be a *lessened* amount of indol in the stool from the typhoid patient. However, it must be added that in another comparative

test made in the same manner, the results did not differ the one from the other, so that it does not always follow that indol is diminished in the feces after the administration of naphthalin.

In order to show the effects of naphthalin on urine from day to day, as well as to study the effects produced by its administration during an attack of diarrhea occurring during the course of typhoid fever, reference to the following case may be interesting. (A due allowance must be made for paregoric and bismuth subnitrate in controlling the diarrhea while the naphthalin was being administered, and it is admitted that many fallacies are possible from the intermixture of effects of the drugs.)

Case 2.—W. H., male, American, aged 17 years, had suffered from pneumonia eight years previously; was otherwise healthy until the onset of this attack. He had been feeling unwell for several days previous to Saturday, December 31, but on that day symptoms gradually increased in severity, manifested by headache, which continued for several days. The bowels had moved once daily. On January 3 the patient began to suffer from headache again accompanied by pain in the back and limbs. At this time slight fever was present and the bowels became loose, moving two or three times during the day, and the patient ceased work on January 4. The bowels continued to be loose, with from two to three stools daily. Epistaxis and pains in the abdominal region came on, and on January 5 he suffered from nosebleeding again, with bowels still loose. The patient's mother had noticed that for the previous several days his face had become flushed toward the afternoon and it was thought there had been fever present.

The patient was first seen on January 8, and the following symptoms noted: The abdomen was flat, with no pain on pressure. The pupils were normal, facial expression dull and listless, tongue moist and slightly coated, whitish in certain areas. A faint systolic murmur was heard in the fifth interspace, corresponding to the apex-beat, and sibilant râles anteriorly. The pulse was full and strong. He was given fractional doses of calomel, which acted four times during the day. January 9, a specimen of blood obtained from the lobe of the ear gave the positive Widal reaction. January 10, the patient complained of having been restless during the previous night, remaining awake until 4 A.M.; suffered from considerable pain in abdominal region; tongue becoming heavily coated, the edges being normal in color; patient appeared very dull and was hardly able to retain the thermometer between the teeth. The spleen did not seem to be enlarged. The peripheral circulation appeared sluggish. The urine, on January 10, was dark, amber color, odor normal, sp. gr. 1022, acid reaction, no albumin, no glucose, and *not a trace of indican*; urea was 1 per cent. and taking 1200 c.c. as the amount passed in twenty-four hours, equaled 11 grams (164 grains) in the daily output. The sediment was composed of urates, uric acid crystals and granular débris. There were no casts. The patient had not taken any medicine of any kind since the calomel purge two days previously, except .33 grams of phenacetin on that day—the temperature being subsequently controlled by cold baths. A milk diet and use of the bedpan were strictly enjoined and upright posture during the taking of nourishment was forbidden. The pulse was full and strong, 86 per minute; bowels had moved five or six times during the day, but there had been no blood in the feces. He had taken about sixty-four ounces of milk and possibly sixteen ounces of strained soup during the day.

On account of the diarrhea, 8 c.c. of camphorated tincture of opium was advised every three hours, beginning at 7:30 P.M.

January 10: The patient had slept about six hours during the night; bowels had not acted since the previous day; spleen slightly enlarged, but not tender; toward afternoon the bowels became loose, moving four times, and camphorated tincture of opium (8 c.c.) with bismuth subnitrate (0.8 grams) was given every three hours until four doses had been taken.

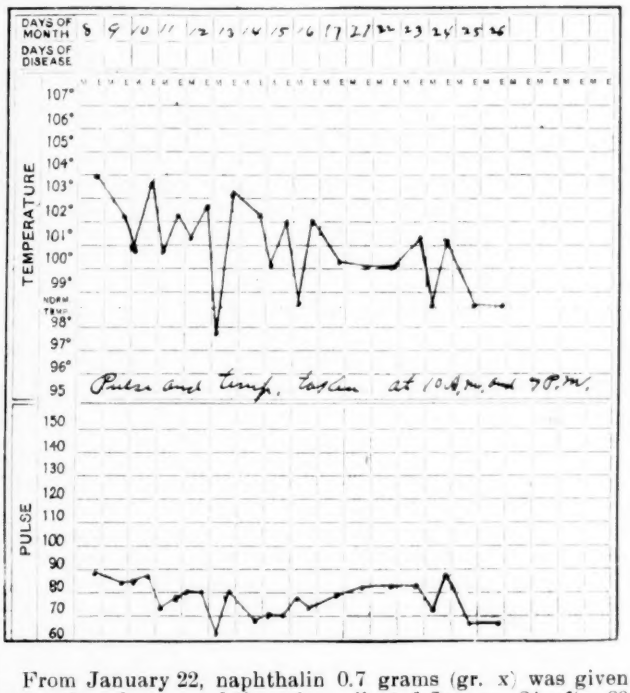
At 11 A.M. he began to take naphthalin, 0.7 grams every three hours day and night, the paregoric and bismuth also being continued.

January 12: The patient did not sleep well during the night and complained of colicky pains in the lower abdominal and lumbar regions. The bowels acted at 3 and 5 A.M. Paregoric, bismuth and naphthalin were continued.

On inquiry it was learned that the milk had been given when quite cold, for which warmer milk was substituted, containing a small amount of lime-water. The urine, which had been amber colored until January 11, at 8 P.M., began to turn dark from the naphthalin. It was examined and showed a specific gravity of 1026, and *indican still absent*—in order to confirm the absence of indican both sodium hypochlorite and calcium hypochlorite were used. The urine had the odor of naphthalin and was very dark in color. A slight burning pain was complained of in the region of the neck of the bladder. The pulse was regular and full. In one stool particles of undigested milk were found. Owing to neglect, sordes had been allowed to collect about the teeth and gums, but which were subsequently kept clean by means of a weak solution of glycerin and persistent use of a tooth-brush.

January 13: The patient slept about five hours during the night, entirely free from pain, except slight pain on micturition. After 3 A.M. the bowels had moved three times. At 10 A.M. the pulse was 60, regular and full, and the temperature registered 97.8 degrees. At 6 P.M. the pulse was 80; temperature 103.4. Naphthalin was continued until January 22, the patient having taken 160 grains since January 10. The bowels did not move any more during the day, subsequent to the morning action, and the paregoric and bismuth were discontinued. Boiled milk was now given, after which there was no more trouble with the bowels throughout the course of disease.

January 14: At 6 P.M. a bath was given, it being the only one necessary during the day. The mother stated that the patient had passed a good day. Free perspiration had occurred in the morning hours. The tongue was moist and had begun to clear off about the edges; bowels moved once. At 5 P.M. the urine was collected, was dark in color and contained no albumin nor indican. The urea was 0.9 per cent. and estimating that 1200 c.c. had been passed during the twenty-four hours, equaled 156 grains excreted during this period. One waxy cast was found, but a careful search failed to reveal any more. There was no blood. The heart murmur had now disappeared.



From January 22, naphthalin 0.7 grams (gr. x) was given every three hours, and the urine collected January 24, after 80 grains of naphtalin had been given. The results of examination were: Amount, 1200 c.c. (36 ounces); color blackish; odor of naphtalin; sp. gr. 1015; acid reaction; no albumin; no glucose. In the sediment were found a few crystals of uric acid and amorphous urates. There were no red blood-cells, no leucocytes, and no casts. The urea equaled 1 per cent. or 15 grams (164 grains) by one apparatus, and 9 grams (131 grains) by another, showing the variability of instruments used for the purpose of estimating this constituent of the urine.

From a study of these two cases it does not appear that naphtalin causes irritation of the kidneys.

None of these eight patients to which naphtalin had been given required any stimulant, such as alcohol, digitalis, or strychnia, throughout the course of the disease, and each made a good recovery.

NOTE.—The tests for indol were modified from von Jaksch. In making the test containing the nitrite of amyl, care must be exercised in breaking the glass bead, especially if the graduate contains alcohol, for the nitrite is liberated with such force as to throw particles of glass quite a distance, thus endangering the eyesight.

DR. JOSEPH THOMAS of Quakerstown, Pa., was recently elected president of the State Asylum for the Insane at Norristown.

JOHANNES EVANGELISTE PURKINJE.

BY RUSSELL BURTON OPITZ, M.D.
THE UNIVERSITY OF BRESLAU.

From the turret of a magnificent building belonging to the Medical School of the University of Breslau, the "black and white" of Prussia, fluttering in the breeze, announces to the world that a new home has been completed for the alma mater of all physiologic institutions. The old "Universitas Vratislaviæ" looks back with pride upon its history from the summit of its high place among the institutions for higher education. Breslau ought to be especially proud of the part which it has played in the advance of physiologic science. As early as 1811, there existed at its University a chair of physiology—certainly the first in Germany; In 1839, while Purkinje was professor, the first physiologic laboratory was founded, and the work accomplised in this scene of his early labors, will always hold a high place in the history of physiologic research.

In the early years of this century physiology had not attained any important place among the sciences. It was considered a mere department of anatomy, and as such received little attention in the German universities. Only now and then were to be found men like Albrecht von Haller, who gave special attention to the science. The methods used in investigating the phenomena of life were entirely wanting in completeness and accuracy. Physiologic research was little more than aimless vivisection. Neither chemistry nor physics could come to its aid; the former, because it had itself only just been placed upon a scientific basis, the latter, because it was only beginning to acquire some knowledge of galvanism, while electromagnetic forces, diffusion and other later discoveries were as yet entirely unknown. Physiologic research was not yet thought of. While the anatomist accompanied his lectures with demonstrations, while the chemist illustrated his facts with frequent experiments, the physiologist remained content with mere theoretic discussion. Lectures in physiology consisted, for the most part, in the dictation of a few pieces of research. Anatomy, pathology and physiology were taught by the same professor in all universities outside Breslau. Not until 1831 did a second German nniversity, following the example of Breslau, make physiology an independent department.

From 1811 to 1821 von Bartels occupied the chair of physiology at Breslau. On his leaving to accept a call to the University of Maxburg, two candidates aspired to the vacant chair. Of them, one was an unknown Bohemian man of science, the subject of this memoir—Johannes Evangeliste Purkinje. The fact that he was supported in his candidature by Humboldt, Goethe and Rust is sufficient evidence that Purkinje, even in those early days, was already marked out for an illustrious career. Goethe, especially, seems to have been deeply impressed by Purkinje's originality. In 1822, he writes: "Mr. Purkinje visited us to-day and gave decided evidence of the possession of remarkable gifts joined with a devotedness and a capacity for effort almost unique." How fortunate the choice made by the University of Breslau, in appointing Purkinje, later years showed. In less than twenty years after his appointment Purkinje had attained a foremost place among men of science. His influence in the advance of physiologic science it is difficult to estimate, but the nature of the work can not be too highly praised. If his name, to-day, shines with a somewhat diminished luster it is because, at a time so fruitful in scientific research, little attention is paid to historic considerations.

In the hut of a poor Bohemian peasant at the village of Libochowitz, Purkinje first saw the light. In 1797, John being then but 10 years old, his father died, and he was given into the care of some monks. As he grew up, the stillness of monastic life gave him an excellent opportunity of acquiring a thorough knowledge of the German language. German philosophy passed before his view, and Fichte especially seems to have gained a decided influence over Purkinje. At any rate we find him at the age of 21 studying philosophy at the University of Prag. A short time afterward he began the study of medicine, being then older than the average student. His college career was exceptionally brilliant. His dissertation for the degree of doctor, "*Beiträge zur Kenntniss des Schens in subjectiver Hinsight*" (1819), introduced him to the most prominent men of the day and led to his appointment as lecturer in anatomy at Prag. This position he held until 1822, when he received a call to the chair of physiology at the University of Breslau. In accepting this post Purkinje made another step on the path to fame. Yet he found nothing attractive or inviting in Germany. The science of physiology was in a neglected condition, and despite the fact that his candidature had been supported by the great names already mentioned, the medical faculty at Breslau met their new colleague in a manner far from friendly, because their wishes in the matter of the appointment had been ignored. Shortly after Purkinje had commenced his duties at Breslau a petition for his removal was set on foot by his colleagues, who alleged as a ground for this step his utter inability to deliver a lecture. It can not be denied that Purkinje had little idea how to make an attractive presentation of the subject. At first his lectures, which consisted in a speculative discussion of physiologic problems, were well attended, but the number of his students gradually grew smaller, till at last he lectured to empty benches.

In his early letters Purkinje deeply regrets the theoretic, the speculative character of the physiology of the day. He considers the position of lecturer merely as a mechanism by means of which the theories of the old masters are repeated again and again. In 1824, therefore, he decided to supplement his lectures by experimental demonstrations, in order that physiology might become the more interesting to the student. The money necessary for this purpose he took out of his own pocket, diminishing in this way an already scanty salary. Thus it frequently happened that his funds were exhausted long before his salary was due to him. At length, after much discussion, an allowance of $35 yearly was granted by the State to cover the expenses of the practical course. The demonstrations were held in a small room attached to the department of anatomy.

Thus, in 1824, was originated at Breslau the first experimental course in physiology. This year is also memorable by the fact that Liebig founded at Giessen the first chemic laboratory. How important was this step now taken by Purkinje can only be correctly estimated by those who have the later development of the experimental sciences in view. Upon experimental physiology Traube and Virchow based experimental pathology. Later, arose out of the early work

of Purkinje pharmacology and practical hygiene. Indeed, one may say that the present superiority of German medical science originated with the lectures in experimental physiology instituted by Purkinje in 1824. Little did the great physiologist dream that the seed sown by him in Breslau would become within a measurable period the vital and complex tree of to-day.

The long-existing enmity between him and the professor of anatomy compelled Purkinje to seek a lecture room in the physical laboratory, yet even here, many difficulties beset the life of the youthful experimental science. In 1831, Purkinje asked the authorities to erect a special building for physiology. With this petition begins the history of the physiologic laboratory.

That physiology would cease to be merely speculative and would become an experimental science, Purkinje was convinced. He had also no intention that it should idly await the results of chemic and physical investigations. It was to be entirely independent, should stand upon its own merits and gather fruits of its own. For a time, however, the answer of the University authorities to his requisition shattered all his fair hopes. He was advised to be moderate in his demands. His brilliant ideas as to the future of the science were considered an idle dream. Utterly discouraged, Purkinje gathered up his instruments and appliances and departed with them to his own home. He had lost several members of his family by cholera. A child which needed the care and protection of a tender father was taken under his care. There was no room in his house which was not filled with glasses, instruments and organic substances. The health of his family became thereby endangered. It is with the deepest admiration that we look back upon the life of a man who gave, not only all that he possessed, but his whole self to the interests of his beloved science. Such sacrifices as these deserved to be crowned with success.

In his own home, under most unfavorable conditions, Purkinje thus laid the foundation of modern physiology. Long before the time of Schwann, he and his disciples originated microscopic anatomy. Although the compound microscope had been in existence for nearly a century, Purkinje was not the fortunate possessor of such an instrument. It is curious that all the important discoveries of Purkinje up to 1830 were made by means of simple lenses. In that year he asked the University to furnish him with a compound microscope at a cost of fifty dollars. They refused to expend so large a sum for the benefit of one professor, and Purkinje purchased it himself with the assistance of his friends. This microscope, now grown famous, is still to be seen in the laboratory at Breslau. It bears the marks of constant use, but its lenses are still as clear and powerful as on the day when, by its means, Purkinje first beheld the cells of the cerebellum which bear his name.

In spite of all drawbacks, Purkinje opened up new paths for science. The number of his students increased year by year, and his lectures were well attended. At length, as a slight recognition of his services, his salary was increased to $200 a year and an allowance of $150 a year was made for experimental work. In acknowledgement of this generosity on the part of the authorities, Purkinje sent a communication consisting of some twenty pages, in which he dwelt at length upon the needs of the department. His voice was heard, and his life-dream realized. In 1839, Purkinje became the principal of the first physiologic laboratory. Although the building was anything but perfect, Purkinje was more than content, his great wish being to see his science housed in a separate building.

It is a curious fact to note that from this time forward Purkinje's work ceased to be of the first importance. All his great discoveries had been made in his own home, and in the days of adversity. The hour of prosperity and the more favorable conditions are unmarked by any great discovery. The blossoming time of his genius, his *annus mirabilis*, lay in the past. To the future he bequeathed his spirit. It was not without regret that he marked his decline, that he saw his sun had passed its zenith. In 1844 he writes: "Since I have attained the goal of my wishes, all my physical and mental power has become exhausted, yet many promising investigations await the time when I shall have regained my lost love for work." In 1850, he was appointed professor of physiology at Prag. The Austrian government built a splendid laboratory, gave him an able assistant and a large salary. Yet, Purkinje never regained his earlier powers as a scientific discoverer.

What, it may be asked, were the reasons for this decline? One cause at least, may be assigned. About 1850, Purkinje began to take part in Slavic national movements. He was penetrated with the idea of Slavic greatness. He had become a patriot, a dreamer. More and more he lost sight of his science. After his return to Prag, he took an active part in politics, was elected member of the Bohemian Landtag, and became the leader of the Slavic party.

Purkinje died in 1869, at the age of 62. The last period of life has little interest for the German. Gladly, however, does Germany look back to the time when her aspiring sons surrounded Purkinje and aided him in the creation of a new science. Nor did the Slavs forget their countryman. The Slavic nation also laid on his grave the patriot's laurel-wreath. By his death Germany lost a man who during the best years of his life had dignified and ennobled German science.

The works of Purkinje admit of a twofold division. The first includes his contributions on psychologic subjects, the second, his morphologic works. In the first series his chief work is: "*Uber das sehen in subjectiver Hinsicht.*" With remarkable clearness and exactness Purkinje then describes the phenomena produced by electric and mechanic stimulation of the eye, also the well-known scientific fact which now goes under the name of "Purkinje's Phenomena."

Purkinje was aware that the rays from an object in space are focused upon the retina. The formation of images depends upon the accommodation of the refractive media of the eye. He entered upon the task of measuring the curvatures of the lens and cornea, employing, in their determination, a microscope. The images produced by a flame, when held before the eye, are correctly reproduced in this work. Yet, fourteen years later, Sanson of Paris received the credit of this discovery, while still later Helmholtz made this investigation the foundation of his epoch-making discoveries in physiologic optics. The ophthalmoscope is only the completion of an idea long ago expressed by Purkinje. Great attention has been paid to this invention, yet no one mentions in connection with it the name of Purkinje.

His studies on "Dizziness" were followed in 1823 by a paper entitled: *"Commentatio de examine physiologico organi visus et systematis cutanei."* In this work he gives an atomic disquisition upon the eye, which is intended to show the manner in which a physician ought to proceed in attempting to ascertain the normal or abnormal condition of an organ.

Purkinje's work on morphology is of still greater importance. He busied himself constantly with the preparation and preservation of histologic specimens. The first microtome was employed in this work, and Canada balsam was first introduced by him as a means of preserving sections of tissues. Another method constantly practiced in his laboratory consisted in the presentation of microscopic sections upon a white background with the aid of the Drummond calcium light.

The beginning of his fruitful career as an investigator was made by the discovery of the sperm-cell in the egg of the hen (1825). A short time after, a paper of his upon a botanic subject was highly praised at Paris. Aided by his famous microscope, he made a number of useful discoveries which laid the foundation of histology ten years before the time of Theodore Schwann. Among other things he described the structure of bone, cartilage, and blood-vessels, the glands of the stomach, and the ducts of the sweat-glands. The pinnacle of his fame was reached in 1837 at Prag. There, at a meeting of naturalists, he astonished his audience by the announcement of his discovery of the axis-cylinder of nerve-cells and by the demonstration of cells in different regions of the central nervous system. Purkinje expressed also at this meeting the opinion that the interior of many organs is composed of cells and nuclei, a fact borne out by Schwann's later investigations: *"Über die Übereinstimmung in der Struktur und dem Wachshum der Thiere und Pflanzen."* Schwann became famous by this discovery, while Purkinje's name was not even mentioned.

Many a time has Purkinje pointed the way to a discovery, when time did not allow of his pursuing the subject exhaustively. There was no one better qualified to stimulate thought and to point out ways and means for the solution of scientific problems. Naturally modest, he cared little for the attention which his work attracted, and his inability to make the best capital out of his discoveries has caused his reputation to suffer somewhat in consequence. Already in 1850 his name seems to have fallen into undeserved obscurity. That these slights cast upon his work are in part intentional is shown by the fact that many of his methods and discoveries find their way into contemporary literature under "modern" names. To help in a slight way to restore the luster of a reputation undeservedly tarnished is the object of this appreciation, *"Ehre wem Ehre gebühret."* Purkinje's name must always remain honored in the history of the scientific progress of this century.

Treatment of Pelvic Neuralgia by Autorectal Dilation.—Prof. Poncet of Lyons has found that mere dilation of the anus and rectum will cure the pains and tenesmus of pelvic neuralgia, not only when they proceed from inflammatory lesions of the adnexa, but also from certain forms of painful prostatism and when they are due to an inoperable cancer of the uterus. He proceeds under chloroform, as for fissure of the anus, extending the dilation to include the rectum—finger or speculum. All the patients were relieved, but as only a few months have passed, the permanency of the cure remains to be established.—*Semaine Méd.*, February 22.

SOME UNUSUAL SYMPTOMS IN A CASE OF MYXEDEMA.*

BY ARNOLD JOLLY, M.D.
HAMBURG, IOWA.

I wish to present a report of a case of myxedema with some unusual symptoms:

Mrs. R., aged 26 years, blonde. She never had any sickness save the ordinary diseases of childhood; has been married six years and has one child, about 5 years old. The beginning of this trouble was in June or July, 1897, when after accompanying her husband (who is a traveling salesman) through the mountains of the West, she apparently began to take on flesh rapidly. With the advent of the increase of flesh came a general indisposition, irritability, languor and exophthalmos. She seemed content to sit quiet and do nothing as compared to her former habits, although she was always up and around the house and entertained company. Her menses stopped in July, and soon after she applied to her physician for treatment for that trouble and for the unnatural flesh she had so rapidly taken on.

In April, 1898, she slipped on the sidewalk, fell and struck her back and side, which gave her more or less pain, of which she complained constantly. Early in May, 1898, she was suddenly seized with a violent pain in the back, in the region of the lower dorsal vertebræ, near where she had been injured by the fall. This pain was so severe that when she moved she would scream with agony, but she would remain perfectly easy as long as she kept quiet and did not move. This "catch in her back" was so severe that she could not be induced to get out of bed again, and kept it until she died. I do not know how much real or how much imaginary this pain was. The harshness of the skin and hair began to show as soon as the disease made itself known. The hair soon began falling out, to be replaced by much darker hair than the original, and the cheeks and the chin were well covered by a growth of hair.

She was treated, up to this time, by various physicians, for suppression of menses, dropsy, pregnancy, rheumatism, neuralgia, etc. She was at this time (about July, 1898, one year after her trouble began and which had not improved) taken in hand by the osteopaths, who at once proceeded to find several ribs, vertebræ and muscles dislocated, and instituted a course of hot sponge baths and a massage treatment which she and her family thought did her good, and I presume it did make her feel more comfortable. After four months of this treatment she was but little better, and in November, 1898, fell into my hands, and I found her in the following condition: Enormous swelling of the face, neck and the entire body, anteriorly, extending down to the lower limbs, but no pitting whatever on pressure. The swelling was so great that the skin in numerous places was so stretched that great furrows seemed to be torn in the areolar tissue, which left in the flabby tissue that followed the treatment great bluish-red streaks or scars, such as occur in a pregnant woman whose abdomen is greatly distended. Her temperature was normal, and I never found it elevated. The pulse ranged from 140 to 160 per minute and never was lower than 120 at any time until about one or two weeks prior to her death. Her respiration was hurried and sometimes labored. The heart never showed any evidence of organic disease, although I feared its continuous, excessive action would cause, if it had not already done so, a dilation of the organ, which was indicated by an increase in dulness of the cardiac area. The thick, dense and harsh appearance of the tissue was very prominent, and the surface was covered with little pimples such as are seen in boys who have acne. The cheeks and chin were covered with an extra growth of hair. She complained of great pain in her back, hips and limbs. There was a wasting away of the flesh on the lower limbs and back. The greater and lesser sciatic nerves seemed to be the seat of all her pain, and whenever she moved she would scream out with severe pain. She seemed content to remain in bed in one position forever, and had always to be forced to move. There was a marked contracture of the knee joint tendons and she could not be induced to even try to straighten them out. Her appetite was good and she slept quite well most of the time. There was an absence or atrophy of the thyroid gland, well-marked exophthalmos present, and while she had a slight moisture at this time, she had had profuse sweating at times, making a change of clothing necessary every day.

I recognized in the summary of the symptoms that I had an anomalous case to deal with, yet after careful consideration I could not help but feel that it was myxedema, and at once put

* Read before the Medical Society of the Missouri Valley, St. Joseph, Mo., March 16, 1899.

her upon the thyroid extract, gradually increasing the dose to 18 grains a day. Her symptoms began to improve some, and the swelling gradually subsided. The exophthalmos gradually grew less prominent, the tachycardia improved slightly and the pulse gradually dropped to 120. Her symptoms now remained about the same for some time, when I added to this treatment tincture of digitalis and tincture cactus grandiflora, to control the heart's action. I also put her upon ten minims of belladonna combined with bromid of sodium, to control the nervousness and insomnia which occasionally occurred. I applied the ice-bags to the precordium, but nothing seemed to improve the symptoms from this point. The neuralgic aches and flitting pains which she would have by spells were treated symptomatically. She was put upon strychnin sulphate, three times a day, during the time she was taking the thyroid extract. About two weeks before her death she was taken with nausea and vomiting, and fearing that the thyroid extract might have something to do with it, I discontinued its use and instituted the ordinary remedies for nausea, which was controlled in a few days and she began to eat. The pulse all this time remained unaffected by the nausea and was as full, regular and as strong as usual. It now began to get slower and gradually fell to 80 per minute and remained there until a few hours before her death—which occurred about a week later—when it gradually grew slower and slower until it quit beating altogether. The night before her death, she began to complain of not being able to talk and grew hysteric. After $\frac{1}{8}$ grain of morphia, hypodermically, she dropped off into a restless sleep, which soon deepened into unconsciousness, and death relieved her at 1 o'clock the next day.

To recapitulate: Her symptoms at the time I saw her were: Great thickness of skin, apparent edema, slight pigmentation of forehead, neck, extensor surfaces of arms and legs; an extreme thickening of tissue at the external corner of the eyebrow and lips, giving an expressionless appearance to the face, similar to that in dementia; in fact, the entire anterior part of the body was very much increased in thickness. There was a very slight sweating, instead of a dryness and harshness of skin. There was a sensation of coldness complained of. The action of the kidneys was sometimes excessive and sometimes diminished. Analysis showed specific gravity to be 1018 to 1022, reaction slightly acid, the solids about normal, with a very slightly diminished percentage of urea, with a few hyalin casts; a suspension of the menstrual flow. There was a very slight deviation from the normal mental condition, but a lack of quickness of perception of things about her, a slowness in ordinary train of thought, an absence of the usual demented and melancholy symptoms generally seen in myxedema. There was insomnia at times. The hair was harsh, coarse, and had all fallen out and been replaced by a much darker hair than the former. The face was covered with pimples similar to acne and had quite a growth of hair on the cheeks and chin, which was also darker than the hair formerly on her head. The pulse, however, instead of being normal, or slower, was very rapid indeed, ranging from 140 to 160. There was a perceptible atrophy or absence of the thyroid gland. Exophthalmos was well marked, great nervousness and irritability. Her breathing at times was fast and difficult and she had a dry cough, which was aggravated whenever there was any excitement which caused the heart to act more rapidly. She also had spastic contraction of the feet and calves of the legs at night. Her mother positively stated to me that she had had profuse sweating daily for a long time, which did not exist at the time I saw her.

The symptoms just enumerated naturally bring us to the consideration of the much-mooted question, "The Cause of Myxedema and Graves' Disease." One is said to be the antithesis of the other. Whatever may be the nature of the predisposing cause, in discussing the pathogenesis of myxedema our entire attention may be focused on one organ alone—the thyroid gland. There is hardly any need to recount the evidence going to show that upon the absence of this organ or upon some disturbances in its function, the whole pathologic superstructure rests secure. In cases of congenital cretinism the gland is not developed or is atrophied, and in many cases of myxedema the thyroid tissue has been found absent. Still the gland may be present, but its presence by no means indicates that its secretion is healthy. Any change, therefore, in the thyroid secretion which produces an alteration quantitatively, in the sense of diminution, or qualitatively, in the sense of departure from the normal physiologic standard—probably in the direction of lowered potency—is apt to be followed by conditions of which cretinism is one expression and myxedema another.

Our knowledge soon finds a barrier beyond which at present we can not pass, when we attempt to account for the marvelous influence of this little body upon the human economy. Of its real or absolute function, many theories have been proffered, but I doubt if anything positive is yet known. However, I firmly believe that from past experiments, the fact has been established that an alteration in the potency of the physiologic properties of the active principle of the juice, the ablation, atrophy of, or congenital absence of the gland will produce myxedema. Mendel thinks it may be the function of the gland to secrete a substance which, when present, prevents the formation of, or neutralizes, if formed, certain toxic substances in the body. If the thyroid material be wanting, these hypothetic toxins accumulate and excite the conditions already named.

It is from the set of symptoms which supervene when thyroid extract is given to a healthy individual, that the term "thyroidism" and the thyroid theory of exophthalmic goiter originated, as the group of symptoms are similar Briefly named, they are: insomnia, restlessness, warmth of skin, tendency to perspiration, accelerated heart action, mental excitability, quickened intellection, muscular twitchings, etc.

This picture presents many features common to the physiognomy of that very enigmatic affection—Graves' disease. Graves' disease, when it merits the name, is said to be accompanied by some change in the thyroid gland. Because of this constant implication of the thyroid gland, and because of the marked resemblance between thyroidism and the symptoms of exophthalmic goiter, as well as of certain evidence of a histologic and pathologic nature, a most interesting theory has been advanced. This theory, to maintain the two distinct diseases, may be brought into direct pathogenic relationship with changes in the thyroid gland. If the gland is atrophied or absent, or the secretion has suffered diminution in any sense, we have learned to expect myxedema; but if the gland is hypertrophied and the amount of thyroid material poured into the blood be in excess, or if not in excess, if such alteration in quality has occurred as shall be equivalent to an increase in functional activity, then we are taught to expect exophthalmic goiter.

Moebius, one of the most ardent advocates of the thyroid theory, thus contrasts Graves' disease with myxedema: "In one case we have enlargement, in the other diminution, in the size of the thyroid: here the pulse is rapid, there slow; the skin soft and fine, warmer than usual, and inclined to sweat, instead of

thick, cold and dry; on the one hand excitability, increased mental irritability, irritable weakness, on the other hand, slowness and dulness of mind."

At this point I wish again to call your attention to the double set of symptoms in the case as quoted above. On the one hand she had the great thickening of the skin, falling of hair, pimpled face, extra growth of hair, all of darker color than normal, absence of atrophy of the thyroid gland, peculiar to myxedema, while on the other there was a very quick pulse, rapid and difficult breathing, exophthalmos, a slight sweating peculiar to Graves' disease. While I admit that there are symptoms of each disease wanting, which go to make up a typic case of either disease, yet there are leading symptoms of both diseases present in this case. If the thyroid theory of myxedema and Graves' disease be true, then I would like an explanation of the symptoms of both diseases occurring in this case.

The pathogenesis of myxedema, I consider from all evidence well established; yet I do not consider myself thoroughly converted to the thyroid theory of exophthalmic goiter. This seems to me to be the deathblow to that theory. I perhaps can not offer you a theory which can carry any weight with it, but it does seem to me that the nervous theory of some toxic influence produced through the diseased gland to the sympathetic nervous system is nearer correct than any other. As Huxley has said: "As science has shown that all modifications in material things are due to motion and change in particles, so the time will come when more delicate means of investigation will prove that so-called psychic conditions are due to change of state in things which are to us, now, non-material." So I believe in a lesion in continuity in all disorders, let it be what is known as functional, or what is known as organic. Time and investigation will probable reveal the means by which this may be demonstrated. The pathology of this disease is that which mostly interests us as scientific men. We can only hope for an intelligent solution of the subject, which I feel must soon come, then the application of intelligent therapy will follow when once the cause and the conditions produced by the cause are explained.

SUGGESTIONS AS TO TREATMENT OF ALCOHOLISM.*

BY DANIEL R. BROWER, A.M., M.D., LL.D.

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CHICAGO.

The more thorough pharmacologic studies that have been made of ethyl alcohol in the last few years have placed it in the class of anesthetics with chloroform and ether, and displaced it from its former association as a stimulant with strychnia and digitalis. This most important fact must be borne in mind in considering the therapy of its poisonous effects. We may recognize three forms of alcoholism from a therapeutic standpoint: 1, acute alcoholic intoxication; 2, acute alcoholic delirium or alcoholic mania, and, 3, chronic alcoholism. These types of poisoning each alike demand for their successful treatment the immediate withdrawal of the alcohol. In my earlier experience with alcoholism, thirty years ago, I withdrew the alcohol gradually, under the impression that it was a stimulant, and that danger would follow any other course, but in later years a more abundant clinical experience has satisfied me that this plan was an error. It, being an anesthetic and a poison, should no longer be added to the body already overburdened with its combined effects.

Acute alcoholic intoxication.—In robust subjects the most rapid results are obtained by putting them to bed and administering a hypodermic of apomorphia hydrochloras, 1/10 to 1/5 grain (0.006-0.012); after emesis the patient will usually go to sleep without further medication, and will awaken sober, but feeble. I then direct a combination of tinctura capsici, 5 minims (0.30), tinctura nucis vomicæ, 5 minims (0.30), tinctura cinchonæ composita, 3i (4.00), every three or four hours, with koumiss, milk, beef-juice or raw eggs ad libitum. The bowels should be relieved as speedily as possible, and for this purpose I usually direct massa hydrargyri, 5 gr. (0.30), followed by a saline laxative. If the patient is too feeble for emesis, I order liquor ammonii acetatis, 3iv (16.0), every two hours, and a wet pack; following this treatment the acute effects of the alcohol speedily disappear. This is to be followed by the tonic course above outlined. For insomnia following acute alcoholism I usually prescribe a combination of sodii bromidum, 15 gr. (1.00), chloral hydras, 15 gr. (1.00), tinctura hyoscyami, 15 minims (1.00), to be repeated in one hour if necessary.

Acute alcoholic delirium and acute alcoholic mania.—Although differing from each other clinically these are therapeutically much the same. The patient should be put to bed in a quiet dark room and carefully watched by adequate attendants. If competent attendants can not be obtained, the patient should be strapped to the bed. The indications for treatment are to procure sleep as soon as possible, and to support the strength. Sleep may be obtained by using the combination above mentioned, or by a combination of chloralamid, 15 gr. (1.00), with hyoscin hydrobromas, 1/100 gr. (0.0006). In the aged and infirm, ammonii bromidum and liquor ammonii acetatis will often produce sleep. These sleep-producing agents should be supplemented by the wet pack; the strength should be sustained by forced feeding with predigested food, malted milk, peptonized milk, somatose, koumiss, etc., and the administration of strychnia sulphas. I fail to see any advantage in using the strychnia hypodermically, except in some emergencies, as all its constitutional effects are obtained by administration per os. After the excitement has subsided, the treatment should be of the same tonic character as that used after acute intoxication.

Chronic alcoholism.—The treatment of chronic alcoholic poisoning can not be successful without power to seclude. Occasionally this may be voluntary, or otherwise compulsory, and one year of treatment under this condition is the least that should be thought of. If this international congress can secure such legislation as will make possible the involuntary commitment of inebriates in various countries, such as is now the case in the Canton of St. Gall, Switzerland, and in the State of New York, U. S. A., making the term one year, with the power of extending, as the physical and mental condition of the patient may

*Read before the Seventh International Congress on the Abuse of Alcohol, at Paris, April 4, 1899

demand, the treatment of chronic alcoholism will soon be efficient. It should consist of mild alteratives as well as tonics. The histologic changes which have taken place in the neuron, in its cell body, in its dendrons and in its neuraxon require the prolonged action of both these therapeutic agents, the terms being used in their broadest sense. As an alterative, I have a special preference for the chlorid of gold and sodium. A somewhat extended study of this neglected drug causes me to emphasize the statement made by Neumeyer as to its alterative value in depressed conditions of the nervous system. It should be given before meals, and care should be exercised in combining it with drugs that will not decompose it. I prefer as a vehicle, as well as a synergist, the resin of guaiac. As tonics, nux vomica, cinchona and iron are the most valuable. Massage, electricity and a Turkish bath are all important agents, combining as they do both alterative and tonic properties. For the insomnia of these patients hyoscin hydrobromas, trional and chloralamid alone or in combination are the best drugs. The digestive organs, usually much impaired, require much consideration. Lavage is usually necessary, and the most easily digestible foods, even predigested food, in the largest possible quantities. Elimination by the bowels, skin and kidneys will usually demand attention. Autointoxication is an active factor in many cases, and colonic flushing, mild laxatives, diuretics and diaphoretics are usually indicated. During this prolonged seclusion a sufficient amount of useful occupation and rational amusement should be provided.

CHRONIC CATARRHAL OTITIS.*

TREATMENT BY OTO-MASSAGE.

BY CLARENCE R. DUFOUR, PHAR.D., M.D.

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WASHINGTON, D. C.

There are two forms of this disease—the hypertrophic and the hyperplastic, or sclerotic. The former consists of a swelling of the mucous membrane lining the tympanum or middle ear and the Eustachian tube, due first to venous congestion which is followed by tissue hypertrophy, the air in the middle ear is absorbed, and no more can get there on account of the closure of the Eustachian tube. The pressure of the atmosphere from without forces the drum membrane inward, until its further displacement is prevented by contact with the inner wall of the tympanum. The membrani tympani is thickened and frequently there is a deposit of lime salts in the fibrous layer. The movement of the drum membrane inward and its retention in this position is favored by the action of the tensor tympani muscle, which draws the membrane inward, when it contracts; this muscle by nonuse will become shortened. The intratympanic ligaments are more or less affected in this disease. The ossicular chain becomes ankylosed by the newly deposited connective tissue becoming changed into dense fibrous tissue and this increases the tension of the chain of bones by contraction; then again, the catarrhal exudate becomes plastic and cements the articulation of the ear bones. All these conditions interfere with free vibration of both the tympanic membrane and ossicles. To be brief, I would state that the hyperplastic form of this disease is just a step further, an increase in the fibrous tissue, that of the lining of the tympanum and tympanic membrane. The latter becoming entirely sclerosed, the adhesions form between the ossicles and the internal wall of the middle ear. These changes are very marked around the oval window, binding the stapes down firmly so that it is not movable; it is an almost total change of the connective tissue and mucous membranes of the ear into fibrous tissue. The subjective sensations are various kinds of noises in the ear and impairment of hearing, which comes on very gradually, so that when the patients present themselves for treatment we often find that much damage has been done to the ear.

The treatment of this disease consists in restoring the mucous membrane to its normal condition before any change in it may occur. This can be done, in the hypertrophic form, usually by inflating the ear by means of the Politzer air-bag, or the Eustachian catheter, passing menthol or iodin vapor into the middle ear through the catheter; also by spraying a 1 per cent. solution of menthol and camphor in liquid albolene through the catheter into the tympanic cavity. The nostrils and nasopharynx should be cleaned by an antiseptic spray, mild and alkaline in character. Dobell's solution (a solution of borax, bicarbonate of sodium and carbolic acid in glycerin and water) I have found beneficial. This spraying should be done two or three times daily by the patients at home, using the precaution not to blow the nose for ten or fifteen minutes after using it. By observing this precaution any of the secretion will be prevented from being blown into the Eustachian tube and from thence into the middle ear where it is liable to cause an inflammation which may result in an acute suppurative otitis. The physician should perform the inflation at his office, and only after the nostril has been freed by the patient from any secretion that might be present; this to be followed by spraying nostrils and throat with the menthol and camphor oily spray. The inflation and medical treatment by the physician should be done two or three times a week, as the conditions indicate. I think treatment every other day is frequent enough for any case.

As indigestion and constipation are liable to affect the mucous membrane of the throat and nasopharynx, attention should be directed toward relieving these conditions. I usually direct my patient to drink a cup of hot water half an hour before breakfast, giving them one of the artificial digestive agents, such as essence of pepsin, pancreatin, extract of malt, caroid, etc., as the case may indicate, governing the administration as to whether it be stomachic or intestinal, starchy or nitrogenous indigestion. A glass of Hunyadi water before breakfast will generally relieve the constipation. Persons who work in a dusty atmosphere suffer more from catarrhal condition of the mucous membrane. I sometimes direct these to put a piece of absorbent cotton lightly in the nostrils. This prevents the particles from entering the nose and keeping up an irritation which will eventually affect the ears.

The treatment I have briefly outlined is the accepted routine treatment, and a good one as far as it goes, but with oto-massage we can go a little farther, i. e., get more cures and improvements. There are several

* Read before the Therapeutic Society of Washington, D. C., March 11, 1899.

forms of oto-massage, as mechanic massage as advised by Lucæ and others, by means of probes placed against the membrana tympani and manipulated by hand. This process is clumsy and painful and my experience has been that many patients will not long submit to a treatment that is painful. By Lucæ's method there is danger of forcing the stapes in the oval window and thereby increasing the pressure in the labyrinth, causing vascular turgescence, augmenting the inflammation which is already present and causing dizziness and unsteady movements of the patients when on their feet. The method of Otard and others, of massaging the tympanic membrane by means of sound, is of some benefit, especially if non-musical sounds are used; the telephone and graphophone are of no benefit whatever. I have a device, upon which I am working, for the production of non-musical sounds for massaging the membrana tympani and ossicles, which I hope to demonstrate in the near future, which, together with my apparatus for pneumomassage, has given very good results.

The method of oto-massage by means of a column of air mechanically applied through the external auditory meatus is the best plan to date and gives better results. The Seigel speculum is used by many otologists and they claim to get good results from it, but it does not have the advantages that a mechanic masseur has, when it is constructed upon proper principles and can be regulated as to speed. The Delstanche masseur is liable to cause pain and congestion as it is usually manipulated too violently. Carefully and gently used it gives good results, but not to be compared to the mechanic masseur, as the latter is painless, safe and beneficial in its action. The apparatus I have been using for several years is a small air-pump, operated by a small electric motor. The speed is regulated so that a very slow motion may be obtained, or one as rapid as it is prudent to use. I always start it on the exhaust stroke, which draws the membrana tympani outward and then pushes it gently inward. Becoming convinced that the inward pressure should be overcome, I thought out a plan which I gave to a firm in Pittsburg for making an instrument, not yet finished. The valves of this instrument are arranged so that the membrana tympani is drawn forward and the air escapes on the return stroke of the piston, which allows the membrana tympani to go back of its own accord, thus entirely obviating compression. The energy of the stroke, as well as the speed, can be absolutely controlled.

Now as to the value of massage in the ear, the rigidity of the chain of ossicles is subjected to passive motion, a stimulation of the circulation and a revitalizing of the mucous membrane of the ear occurs. I have found from three years' experience in the treatment of this disease, by this method, that from 60 to 65 per cent. of benefits have occurred, such as causing a cessation of the tinnitus and improving the hearing by increasing the vibratory power of both membrana tympani and ossicles. The results obtained by the surgeon in passive movement of an anchylosed limb is practically the same result obtained in treating the ear by oto-massage. We get more cures or benefits in the hypertrophic form than in the hyperplastic, though in the latter we often get improvements and cures. In some cases it arrests the process of a slowly advancing deafness, which is of considerable advantage to the patient, though the hearing may not be restored. As this disease advances very slowly and insidiously, the benefit or cure must be equally slow. We can not expect to cure a process that has been present for years and one in which such changes occur in the ear as in catarrhal otitis, in a month or so, although some cures I have caused in that time and some were only benefited. I usually say to my patients that it will extend over several months, and often regulate my fee so that if they must practice economy, they will feel able to undergo the treatment. Twice a week is sufficiently often for seeing the patient, though some cases will require a sitting every other day.

All these cases of catarrhal otitis have a beginning, and the general physician is often the one to whom the symptoms are explained and from whom advice is sought by the patient. So I would enter a plea that when a patient complains of buzzing, roaring in the ear or a little bell tinkles or rings, the ears feel stuffy, as if something were in them, when the hearing is a little impaired, do not pass it by, but look into the ear and into the symptoms, so that you can intelligently refer them to the otologist, when not doing such work yourself, and before the usual changes occur. It must not be concluded that the middle-aged or old are the only ones who suffer or are affected by this disease; on the contrary, the young are also affected, especially with the hypertrophic form, caused by enlarged pharyngeal and faucial tonsils and other causes, which must be removed or reduced before oto-massage will be of benefit.

NOTE.—Since the above was in type I have received my electric pneumomasseur and have been using it for a short time. It has fulfilled my expectations in every respect. I also find it of great value in withdrawing pus from attic and middle ear through the membrana tympani, a safer plan than by inflation.

1016 Fourteenth Street.

Societies.

COMING MEETINGS.

Alabama, Medical Ass'n of the State of, Mobile, April 18.
California, Med. Soc. of the State of, Monterey, April 18.
Florida State Ass'n of Railway Surgeons, Jacksonville, April 18.
Florida State Med. Soc., Jacksonville, April 19.
Georgia, Med. Ass'n of, Macon, April 19.
Hartford County Med. Ass'n, Hartford, Conn., April 19.
Louisiana State Med. Soc., New Orleans, April 25-27.
Maryland Medical and Chirurgical Faculty, Baltimore, Md., April 25.
Tennessee State Med. Soc., Nashville, April.
Texas State Med. Ass'n, San Antonio, April 25.

Balneological Congress.—The next balneological congress will be held in Frankfort A. M., March, 1900.

Third District Branch, N. Y. State Medical Association.—The next meeting of this association will be held at Elmira, N. Y., June 1, 1899.

Salt Lake County Medical Society.—At the last bimonthly session of this society, Dr. W. Y. Croxall was elected secretary to succeed Dr. S. Erving, resigned.

Johnson County Medical Association.—At the recent meeting, the following officers were chosen for the ensuing year: President, T. N. Self; vice-president, A. R. Kuykendall; secretary, R. H. Roark.

Boone County Medical Society.—At the meeting of this society, held at Lebanon, Ind., April 4, election of officers resulted in: President, P. B. Little; vice-president, E. G. Bounell; treasurer; Jessie S. Reagan; secretary, Mary Van Nuys.

Genesee County Medical Society.—The physicians of Genesee County, Mich., gave a dinner in honor of Dr. James C. Willson at Flint, March 30, upon the anniversary of the Doctor's fortieth year in the practice of medicine in the county. The meeting was made the occasion for the starting of the Genesee County Medical Society.

Polk County Medical Society.—The annual meeting of this society was held at Des Moines, Iowa, April 4, and the following officers elected for the year: President, M. N. Voldeng; vice-president, Dr. Emery of Norwalk; secretary, W. W. Pearsons; treasurer, N. T. Schiltz.

North Central Ohio Medical Society.—The eighteenth annual meeting of this society was held recently, at Mansfield, Ohio, and election of officers resulted as follows: President, A. F. Hyde of Shelby; vice presidents, Dr. Trimble of Crestline, J. S. Hedges of Mansfield; secretary, J. Lillian McBride; treasurer, A. H. McCullough. The society will meet in quarterly session at Bucyrus, June 30.

German Society of Public Hygiene.—Drs. Rubner and Leyden (Berlin) are the initiators in the organization of a German Society of Public Hygiene whose aim is: 1, to diffuse the knowledge of hygiene and the results of hygienic research; 2, to take active part in all social questions which pertain to public health; and 3, to encourage and assist all such practical undertakings which purport to further public health.

Hartford County Medical Association.—The 107th annual meeting of this association will be held at Hartford, Conn., April 19. Dr. Erastus P. Swasey will present a dissertation on "Three Cases of Femoral Hernia." The county report will be made by Dr. Frederick T. Simpson, on "Cerebrospinal Meningitis." Dr. A. E. Abrams will read a paper on "Pneumonia," and Dr. E. K. Root one on "Differential Diagnosis of Cardiovesicular Murmurs." Relation of cases will be made by Dr. E. J. McKnight and Dr. J. E. Root, the latter presenting a case of fracture of the cervical vertebra with recovery. Obituaries on Dr. Roswell Fox and Dr. E. K. G. Fox will also be presented.

Washington (D. C.) Obstetrical and Gynecological Society.—The 296th meeting of the society was held at the residence of Dr. Deale. Dr. G. N. Acker read an interesting paper on "Parotitis Complicated with Orchitis and Bright's Disease in Young Children." He cited several cases, giving the history in full, calling special attention to the age of the patients. He believes the disease to be an acute, infectious disease, and the complications the result of the general specific infection. An interesting discussion followed, participated in by Drs. Winter, Adams, Kelly, Bowen and others. Dr. Acker presented a very interesting specimen of blighted ovum and gave the history of the case. An interesting discussion followed.

Washington (D. C.) Medical Society.—At the recent meeting of the society Dr. J. H. Bryan reported cases of chronic pemphigus of the larynx. Dr. Lamb presented cases of cerebral hemorrhage, cerebrospinal meningitis and renal cyst. Dr. D. P. Hickling reported a case of fused kidney and presented the specimen; the two kidneys were intimately united, but two ureters were present. Dr. Mary A. Parsons read an essay entitled "Has Mankind a Rudimentary Sixth Sense in Process of Evolution"? Dr. W. W. Johnston presented the specimen and gave the history of a case of carcinoma of the gall-bladder. Dr. John D. Thomas read a paper on "Some of the Complications of Typhoid Fever, with report of Cases seen in Soldiers During the late War."

Washington (D. C.) Medical Association.—The stated meeting of the association was held April 4, for the annual elections, which resulted as follows: Drs. D. Webster Prentiss, president; Thomas N. McLaughlin and A. E. Balloch, vice-presidents; John R. Wellington, secretary; Frank Leech, treasurer; Drs. G. N. Acker, W. P. Carr, R. T. Holden, H. L. E. Johnson, D. Olin Leech, Clifton Mayfield, John S. McLain, G. C. Ober and R. T. Stone, counsellors; Wm. C. Woodward (health officer), G. Wythe Cooke and Larkin W. Glazebrook (deputy coroner), censors. The following were elected delegates to the next meeting of the AM. MED. ASS'N: Drs. Ida J. Heiberger, H. H. Barker, McLaughlin, G. N. Acker, Robert Reyburn, H. L. E. Johnson, Geo. M. Loehboehler, Geo. M. Koeber, L. Elliott, N. P. Barnes, T. C. Smith, A. E. Balloch, J. D. Morgan, J. S. McLane, C. H. A. Kleinschmidt, G. Wythe Cook, S. Stone, W. D. Hughes, C. L. Allen, J. W. Bovee, D. W. Prentiss, C. W. Franzoni, Clifton Mayfield, C. M. Hammett, A. Berhend, G. L. Magruder, J. D. Thomas, S. S. Adams, P. C. Hunt, W. C. Woodward, P. G. Poole, F. Leach, M. G. Motter, J. R. Wellington, T. A. Claytor, J. H. Mundell, A. L. Stavely, H. B. Deale and H. D. Fry. The secretary, Dr. Frank Leach, reported that the $250 pledged by the association for the Rush Monument Fund had been duly forwarded to Dr. Henry D. Holton of Vermont.

Centennial of Maryland Medical and Chirurgical Faculty.—According to the program of this anniversary celebration (vide JOURNAL, p. 267, 632), April 25-28, Professor Chew's presidential address, the evening of the first day, will be followed by a reception by the faculty. Luncheon will be served daily at the gymnasium of the Johns Hopkins University. The annual dinner, which will be quite attractive, especially in the features of post-prandial addresses, will be on the evening of the third day. All the papers to be read except the presidential address will be by physicians from other cities, as follows: Dr. Herman Knapp, New York, "Some Landmarks in the History of Ophthalmology;" Dr. E. H. Bradford, Boston, "A Study of the Human Gait;" Dr. George Ben. Johnston, Richmond, "How Far Myomectomy is to Supplant Hysterectomy;", Dr. W. W. Johnston, Washington, "J. Hughes Bennett; His Services to Medicine;" Dr. Samuel Alexander, New York, "The Management of Vesical Calculus in Prostatics;" Dr. W. W. Keen, Philadelphia, "The Debt of the Public to the Profession;" Dr. A. Jacobi, New York, "European Medicine About 1799;" Dr. E. G. Janeway, New York, "Clinical Observations on Some Forms of Heart Disease;" Dr. H. C. Wood, Philadelphia, "Nostrums; the Profession; the Law;" Dr. Roswell Park, Buffalo, "Cancer as a Parasitic Disease;" Dr. J. C. Edgar, New York, "Obsolete Teaching." The exhibit of portraits promises to be large and interesting, over 100 portraits of the most eminent of deceased physicians of Maryland being already promised, including works of such artists as Rembrandt, Peale, Sully, Gilbert Stuart and others.

Wayne County Medical Society.—At the regular meeting, April 6, Dr. W. J. Cree read a paper on "What Shall We Prescribe?" directed chiefly against the practice of reputable physicians prescribing nostrums and pharmaceutic preparations where they know nothing of the exact formulæ. He called attention to the tricks of the medical advertisement sharper, who has two methods of procedure. The first is to advertise his nostrum to the lay public and secure a wide-spread patronage, then to reveal the formula of the preparation, and, through avaricious medical journals, advertise it to the medical profession. The other plan is the reverse of this. When the advertiser has secured the acceptance and endorsement of his drug by the medical profession, he advertises it to the people, and quotes the endorsements of the medical men who have found it useful. An evil of prescribing such preparations, the author stated, is that most persons read their prescriptions and soon learn the names of the secret nostrums prescribed. They can thus learn to call for the special preparation needed at any future period, and so in a sense prescribe for themselves. The Doctor had asked several druggists to note the people asking for secret remedies for la grippe, and was informed by the majority of them that 30 per cent. was a safe estimate. To the question, What shall we prescribe? the Doctor said, "My answer is to order only such remedies as are known to be legitimate preparations, and ignore entirely all secret remedies. I believe better results would be obtained and we would treat our patients on a more scientific basis."

American Laryngological, Rhinological and Otological Society (Western Branch).

Annual Meeting, San Francisco, Cal., March 31, 1899.

Dr. H. L. WAGNER, the vice-president, delivered the address of welcome.

Dr. WM. A. MARTIN of San Francisco opened the regular scientific portion of the business by the presentation of two short papers:

I. HEMORRHAGES FOLLOWING ADENOID OPERATIONS.

Dr. Martin stated that there is much more danger in adenoid operations than we are accustomed to believe. He had had no trouble for some years, but afterward found that his early experience was nothing more than good luck. Illustrative of the sort of complication referred to he cited three cases occurring during the past year.

II. A CASE OF EMPYEMA OF SINUS FRONTALIS.

Dr. Martin saw this case first in May, 1898, when there was a large swelling at the inner angle of the orbit of the left eye; the root of the nose on that side was also swollen. Some polypi had been removed. The orbital trouble had been increasing for some time; the man had been afflicted with the disease for several years. The anterior portion of the left middle turbinate was snared away and the natural sinus probed, but without beneficial result. The collection of pus over the orbit was producing so much discomfort that this was first removed by making an incision into the pus sac just below the orbital ridge. About two ounces of pus discharged. Three days later the frontal sinus was opened by means of a bone flap just to the left of the inner angle. The frontal sinus was found to be greatly involved; this was curetted carefully; ethmoi-

dal cells were involved somewhat; drainage-tube was introduced and retained for three months; wound then closed. Shortly afterward pus was found to have again gathered and the wound was reopened; it was now washed and irrigated and a solution of iodoform in absolute alcohol injected. The patient made an eventually good recovery with not very marked deformity.

EMPYEMA OF THE SINUS FRONTALIS.

Dr. FREDERICK FEHLEISEN of San Francisco read a paper on this subject, and said he had operated on some thirty cases, some acute, with fever, etc., but most were old chronic cases which had persisted for years. He used to trephine just above the eyebrow, near the nose, and clean out the sinus as well as he could through this small opening. That method he found not satisfactory and now performed a more radical operation. In the old method all the diseased tissue was not generally removed, and as a result there was long continued discharge from the sinus and poor healing of the wound. Now he removes the entire interior of the sinuses, scraping out not only the mucous membrane, but also the diseased bone which he finds to be present in nearly all old cases. The anterior table over the entire affected region is removed and no diseased tissue allowed to remain. The wounds heal readily and the trouble is cured. He presented two cases.

In Dr. Fehleisen's opinion, it is not enough to simply remove the mucous membrane, but the softened bone, and where there is a fistula, the floor of the sinus should be removed. The cases were exhibited, and though the disease was undoubtedly cured, the resulting scars were very unsightly. As the anterior wall had been removed, there was a marked depression over the eyes, of irregular outline and ragged appearance.

Dr. KASPAR PISCHEL said that in both cases the eyes had been pushed down and out; there was hypophoria and esophoria, but there was no binocular vision. In both cases the vision was very good. Transillumination had been tried on these cases, but it was of but little value in affections of the frontal sinus. He thought it useless to try syringing in these cases, as there was always a much degenerated mucous membrane, and often much granular tissue, which must be removed before suppuration will cease and the wound heal. A more radical operation is much to be preferred. In most cases there is no direct effect of the sight due to optic nerve involvement, but this does occasionally occur. He cited a case on which he had recently operated, in which the optic nerve had become involved through spread of the inflammatory condition. The disease was caused by repeated severe colds following an attack of the grip. He could nearly, but not quite, probe the frontal sinus through the natural opening, and found the customary pain when the probe came near to the inner angle of the orbit. Operation relieved the trouble with the sinus, but not the nerve affection.

Dr. F. B. EATON thought it rather too heroic to make such a radical operation as was done in the cases presented by Dr. Fehleisen. The disfigurement was very great. He thought it much more advisable to treat by packing through the sinus or a small opening, and most if not all cases could be cured. The treatment is tedious but efficacious. He called attention to the method advocated by Gulovien, in which hot steam is injected into the cavity through a small tube first introduced either through the fistula, if such be present, through the natural opening, if it be possible, or through a small incision.

Dr. SAMPSON TRASK said the cases presented by Dr. Fehleisen were instructive as to the results of the more radical operation, but he himself was more conservative, thinking that simpler means, though they consumed more time, yielded cures and did not leave unsightly scars. He called attention to the normal opening into the frontal sinus, which he thought might be more extensively used. Removal of the anterior portion of the middle turbinate generally made it possible to probe the sinus in this manner.

Dr. ADOLPH BARKAN considered the operation for removal of adenoids a very serious one. The pharyngeal tonsil was the one of the three most liable to give trouble, and he makes it a rule never to operate on the three at once, and always insists on having the patient in the hospital for at least twenty four hours, for adenoid operations. He will not operate if they will not go to the hospital. As a routine procedure, he first introduces a silk thread through a soft catheter, leaving it in place through the nose and mouth till several hours have passed and no trouble is evident. It is easier to pass the thread before the operation, when the patient is quiet, than in the face of a severe hemorrhage when the patient is excited and weakened by severe bleeding.

Dr. FEHLEISEN was much interested in the proposed use of hot steam for dealing with these affections, but had not yet been able to make use of it. He thought that if there had been, for some time, a fistula in the floor of the frontal sinus only, the removal of the diseased bone would effect a cure.

Dr. MARTIN thought the specialist took more thought to the ultimate cosmetic result of an operation than did the general surgeon. Specialists were therefore rather loath to undertake the extremely radical operation of removing the anterior table over the frontal sinuses, and were willing to spend more time in the slower method of treatment when there was any chance of its being eventually successful. He had quite cured one very severe case by the injection, through a canula introduced by means of the natural passages, of a solution of iodoform and absolute alcohol. The treatment covered a period of one and a half years, but the patient was more than willing to put up with the long treatment rather than be disfigured by the radical operation.

Dr. SAMPSON TRASK, in discussing hemorrhage after adenoid operations, said there was always to be remembered the danger of hemorrhage following operations on the throat. Especially is this true after operations on the third tonsil. He considered it unwise to operate on these affections during the existence of any acute inflammatory process.

Dr. MARTIN said that undoubtedly a hospital was the best place in which to operate for the removal of adenoid growths, but unfortunately all patients had not the necessary means to go to a hospital and also pay for the operation. The placing of a silk thread before the operation, as suggested by Dr. Barkan, was also an excellent idea; but in two of the three cases which he had just reported, the thread would have been removed even by Dr. Barkan, long before the hemorrhage occurred. In one there was no hemorrhage to amount to anything within twenty-four hours, and no considerable hemorrhage till the fifth day. In the last case, the alarming hemorrhage did not appear till the ninth day after the operation. He had made use of extract of suprarenal capsule in two or three cases, and so far thought well of it. In one case in which he had operated to divide a band between the middle turbinate and the septum, he met with excessive hemorrhage after the first cut, in spite of the fact that he had made liberal use of the solution of the suprarenal gland. What it would really be worth remained to be seen.

UNILATERAL HYPERTROPHY.

Dr. DOUGLASS W. MONTGOMERY of San Francisco made a further report of a case of unilateral hypertrophy of the face, with unilateral hypertrophy of the hard palate and gums. The history of this exceedingly rare condition, which was so unusually well marked in the case exhibited, was as follows: The patient, a man of about 45, had been under observation by the doctor since 1893. His parents were German, and so far as could be ascertained, perfectly normal. The man's birth and life, up to the fifth year certainly, were also normal. A photograph taken at the fifth year shows no peculiarity. A photograph taken at the tenth year, on the contrary, shows the condition commencing. A slight enlargement of the left side of the face could be noticed in the photograph taken when the patient was ten years old. The hypertrophy was very well marked and was absolutely unilateral, the median line very exactly marking the line of hypertrophy. Along the head and forehead was a large roll of bone; the malar was very prominently enlarged; the skin as well as the bones on that side of the face was the seat of hypertrophic changes. Indeed, in 1893, a very large roll of skin had been removed by operation, from just beneath the left eye, where it acted mechanically in disturbing the man's vision. This had not returned since the time of operation. The lips, gums and hard palate were greatly enlarged, and a cast of the mouth, which was shown, exhibited this peculiar condition most strikingly. The skin on the left side of the face was markedly red, but Dr. Montgomery stated that it was not so red as it had been three years ago; he thought the condition was receding to a certain extent. Certainly it seems to be at a standstill. There was no enlargement of any other portion of the body, either on that side or the other. There was no enlargement of the hypophysis and the case was surely not one of acromegaly. The doctor called attention to the excessive rarity of the condition, and mentioned all the cases thus far reported, the first being by Beck, in 1836. Almost all of the cases reported were, however, congenital; this case was not, but a clear case of acquired, progressive unilateral hypertrophy of the face. No explanation of the phenomenon was attempted.

OTOLOGIC EXPERIENCES DURING THE NAVAL BATTLE OF SANTIAGO, ON BOARD THE IOWA.

Dr. M. H. SIMONS, U. S. N., first considered the two kinds of powder used on board, the brown prismatic and the so-called smokeless powders. In the brown, some of the grains are

unburned, and by the explosion are finely powdered. This dust is often blown back on to the decks of the ship and is somewhat irritating to the mucous membranes. It causes slight congestion, which passes rapidly away. The smokeless powder does produce some slight amount of smoke, or rather haziness in the air, after a discharge of a large amount. Carbonic oxid gas forms in the breech, and when the latter is opened, is changed to carbon dioxid; no ill effects were noted from this gas. After a number of discharges the decks become hazy with the fumes from this powder, and there is noticed a slight, though decided acid smell. It is extremely irritating to all mucous membranes, though no serious trouble results. When the decks are washed down after the firing has ceased, this all passes away. After the battle of Santiago there were several cases of nasal, tonsillar and eye inflammations; these were simple and yielded at once to simple treatment. A few were deaf, some for from two to four days, but they all recovered by the use of inhalations and politzerizing. Only two cases were observed in which there was rupture of the tympanum. Here there was no pain, but the patients complained of tinnitus. The Doctor stated that he was himself slightly deaf as a result of that engagement. When a gun is fired, there is a feeling of a sudden blow, something like the blow from a bar of iron. With the small guns this is quite sharp, but with the large guns it is more heavy. Some complained of general muscular soreness after the battle. The two cases of perforation occurred in the vicinity of the eight inch gun. In his opinion the deafness was the result of the irritation of the throat, primarily, this producing a closure of the Eustachian tube; a subsequent heavy discharge would force in the tympanum, thus forcing out a small amount of air which could not return and hence the drum would be somewhat retracted and slight deafness result.

Dr. WM. A. MARTIN had seen some cases of rupture of the drum membrane from explosions and thought the explanation was not that suggested by Dr. Simons, but more in the nature of an outward thrust of the air in the middle ear, occurring at the time when the wave of rarefaction, or partial vacuum, struck the ear; in other words, that the rupture is due to pressure from within.

Dr. F. B. EATON agreed with Dr. Simons, and artillerymen had told him to keep his mouth open when near a large gun about to be fired, saying that this prevented the injury to the ear. He thought the impact of the wave could do more damage than the pressure from within.

Dr. SIMONS had not noticed any cases of deafness until the guns had been firing for at least fifteen minutes, during which time the gases had accumulated and produced their irritating effect. He spoke of the difference which relative position had in the effect, but said that one could not choose his attitude, for guns were going off above, below and on all sides. The irritation of the fumes was much like the irritation produced by holding the head over a vessel of weak formalin solution.

Chicago Academy of Medicine.

Regular Meeting March 10, 1899.

Dr. HAROLD N. MOYER officiated as chairman of the meeting.

THE ORIGIN OF CONNECTIVE TISSUE FROM EPITHELIAL CELLS.

Dr. LEO LOEB read a paper on the above subject. He reported some observations of transitional stages between epithelium and connective tissue. These observations were made in connection with experiments on the transplantation of skin. In one series of experiments the skin was transplanted on superficial wounds, in another it was transplanted in the deeper layers of the ear of the guinea pig. The transplanted skin was examined in many stages of its healing process. In many places one gets an impression as if the nuclei of the deeper epithelial cells were transformed into the nuclei of the connective tissue. The nuclei of the deepest epithelial cells may sometimes have a different morphologic character. In such cases the nuclei of the underlying connective tissue frequently have forms corresponding to those of the nuclei of the epithelial cells. Not infrequently the nuclei of the deepest epithelial cells have no longer their usual vesicular structure, but have a structure more like that of the connective tissue, being more or less rod like in character.

Secondly, at certain places beneath the epithelium one notices the fading away of the epithelial cells, so that only their dim outlines may be visible. The regenerating epithelial cells are often closely connected by protoplasmic bridges with the underlying tissue. Especially in the hair follicles beneath the transplanted tissue, there appears gradual transition of the character of epithelial cells to the character of the connective-tissue cells. Under certain conditions the epithelium presents the appearance of the "upper protoplasmic layer." The latter is characterized by its homogeneous transparent protoplasm and its lack of visible cell limits. It possesses nuclei which do not have the ordinary vesicular appearance of epithelial nuclei.

Microscopic sections obtained from three experiments were described more in detail. They showed at different places appearances of gradual transition of epithelial cells to connective-tissue cells. The nearer the cells were to the epithelium, the more closely did they have the character of epithelial cells. Farther away they showed the typic character of connective-tissue cells. In a former paper the author had reported an observation of the epithelial tissue breaking through cartilage. Here the epithelial cells take a spindle form, being much drawn out, so that they could be easily taken for connective-tissue cells.

To these cases of transition the epithelial cells and connective tissue cells have the same direction. It must be stated that at many places there is a sharp line of demarcation between the epithelium and the underlying tissue, but frequently there is a direct connection, no such line of demarcation being present.

The papillæ in the regenerating or in the transplanted skin do not have the regular form as seen in the normal skin, but have the most irregular and grotesque forms. They may form an overhanging protuberance, the basal portion of which is separated from the epithelium by a straight line. This curious formation can be explained on the supposition that the papillæ are formed by the gradual breaking down of the epithelium.

Along the margins of the papillæ one sometimes observes the dim outlines of the original epithelial cells and nuclei which have the character of the connective tissue; yet nuclei resembling the nuclei of the epithelial cells are situated in the direction of the nuclei of the epithelial cells. In a former contribution the author had described how in certain cases the epithelium penetrated into the blood, but in such cases no connective tissue could be detected. Further experiments are in progress to study the action of different tissues on substances like agar, blood serum, etc., in order to observe the regeneration under these conditions and, if possible, to get means to isolate different tissues in this way.

Beneath the regenerating epithelium one very often finds a layer of fibrous tissue so closely attached to it that it appears to have been derived from the epithelium. This layer has the character of a connective tissue lamella and branches out beneath into the connective tissue.

The theory that epithelium can change to connective tissue would explain them. The pictures described above are not brought about by the epithelium being dragged into the connective tissue by the microtome knife. These microscopic appearances can not be explained by the hypothesis that connective tissue changes to epithelium, because epithelium regenerates only in connection with epithelium. They might be partially explained by the supposition that connective tissue from beneath grows upward and forms a connection with the overlying epithelium. But in a number of cases we observe that the cells near the epithelium are much more like epithelial cells than the cells far away. This fact must be explained. And in addition the peculiar forms of the papillæ can not be produced by the destruction of the epithelium through connective-tissue cells. If that were the case we should expect to much more frequently see that cells of one character, namely, connective-tissue cells, penetrate into and mingle with cells of another character, namely, epithelial cells. Embryologic facts do not preclude the possibility of the above-given interpretation. A closer analysis of the term "germ layer," as has been given in a paper of Braem, shows us that the term has by no means such a fixed meaning as was formerly believed.

Dr. GUSTAV FÜTTERER—What I have to say will refer only to the specimens of Dr. Loeb. In dealing with a question like this we must not be influenced by the views which are generally held at present or have been held in the past, but we should simply carefully observe the specimens, state what we can see, and draw our conclusions afterward. If I do that, I must say that I am fully in accord with Dr. Leob that his microscopic specimens are quite convincing. The papillæ from which such connective tissue cells form acquire a ragged appearance. The epithelial cells become loosened, and the line of demarcation referred to by the Doctor almost disappears. The proliferating cells growing into the subcutaneous tissue seem to acquire more and more the character of connective tissue cells. Such cells proliferate deep into the subcutaneous layer. Whenever

we find these transformed cells in the deeper layers, we generally find them also beneath the epithelial layer. We can not expect to find them in every section, but, as a rule, it has been proven in the specimens exhibited, and I am convinced that the epithelial cells growing downward into the subcutaneous tissue there acquire the forms of the cells of this layer.

Dr. EDWIN KLEBS—It is difficult to venture an opinion upon so important a subject without first examining the slides presented by Dr. Loeb, and one can not give a positive opinion in a moment, when Dr. Loeb assures us that he has seen the transformation of epithelial cells into the connective-tissue cells. When I began the study of pathology and kindred subjects, I did so under the direction and influence of Virchow, who held that the epithelial cells in carcinoma and in the interior of the organs were a heterologous production of this tissue. But embryologists and pathologists now believe there is quite a distinct offspring for the tissues of the ectoblasts and endo blasts against the tissues of the mesoblast. It is believed by some that the tissues of the mesoblast have their origin first in endoblastic tissue. Virchow believes that if we find epithelial tissue in mesoblastic tissue, then it is very important for the diagnosis of malignant growth. It is a question if epithelial tissues can form connective tissue, although there are some observations which speak in favor of this, while embryologic observations speak against it. If we have a large ulcer of the leg which remains for years in the same condition we sometimes see the formation of granulation tissue, at other times nothing, no reaction.

But in other cases epithelial cells will grow in the center of the ulceration, proliferate, and finally penetrate into the bones and produce carcinoma. In many other cases of carcinoma it is very difficult to detect the primary affection, but modern pathology has shown that such a place can be detected, and that it is always situated in pre existing epithelial formations. If pathology thus shows the legitimate development of epithe lium from epithelium only, it seems very improbable that, on the contrary, epithelial cells should anywhere produce meso blastic or connective-tissue cells. But competent observers, as Koelliker, in 1879, have given out statements favorable to this opinion. Modern embryology pretends that the first forma tion of the mesoblast is derived from the ectoblast. Hajek claims to have observed the division of ectoblastic and ento blastic cells in an anteroposterior direction, the internal elements forming the cells of the mesoblast. The opinion of Beard is quite new (*Lancet*, Jan. 21, 1899), that the thymus produces only the mesoblastic elements. If this be true, one may accept also the idea that in later life, under certain conditions, connective-tissue cells can be formed from epithelial cells; but it will be very difficult to demonstrate in microscopic preparations, from a contiguity, the *post hoc, ergo propter hoc.*

Some inquiries after the methods used by Dr. Loeb in his researches can not be followed on this occasion, and so I must decline to give a definite opinion.

Dr. GUSTAV FÜTTERER—Dr. Loeb has labored under a great disadvantage to-night, because it is very hard to demonstrate such specimens as these with such imperfect light. Daylight is absolutely essential to show what he wants to show. The first specimen, without doubt, shows the growth of epithelial cells and transplanted tissue into the underlying tissue. The second specimen seems to show a transformation into connec tive tissue cells. If we follow the layers deeper and deeper we will find that the cells become more and more spindle shaped; that the nuclei become more and more like the nuclei of spindle cells. They commence to show a fragile appearance, and their protoplasm begins to appear like that of connective-tissue cells. One slide shows the cells in direct connection with the papilla, but they may also be seen in the lower layers of the subcutaneous tissue. Dr. Loeb is not here to make a sensational statement; he is after the truth, and nothing but the truth. He expects sharp criticism and wants it. He wants to be convinced if he is wrong, and if I am wrong in corroborating his statements I too want to be convinced. The only way to give perfect satisfaction is to invite the members of the academy to inspect these specimens in daylight, and then discuss them after such inspection.

Dr. F. ROBERT ZEIT—I have examined some of the specimens of Dr. Loeb, and I think that under the circumstances it would almost seem an injustice to him to utter any criticism. To establish a difficult problem like this there should be a large number of microscopes at disposal and the very best source of light to show the different points. However, he has done very well under the circumstances, and I agree fully with what Dr. Fütterer has said, in one respect. I have been able to convince myself that epithelial cells proliferate into the deeper structures and there gradually change into spindle-shaped cells. Where we have atypic epithelial-cell proliferation, such as we see in carcinoma, the margins of the cell-nests are always well marked, sharp and distinct. In Dr. Loeb's specimens, however, I have been able to see a few places where epithelial cells proliferated into the deeper structures and gradually became spindle-shaped, very much resembling connective-tissue cells. The sharply defined border line of basement membrane or germinal layer of epithelial cells of the stratum Malpighii is lost. Notwithstanding the views held of epiblast, mesoblast and hypoblast, there are places here which certainly look like epithelial cells, which take on the form of connective tissue cells. That brings me to another point which every laboratory worker has experienced in the diagnosis of some tumors, and that is, the difficulty to positively say as to whether in certain cases the growth is of epiblastic, hypoblastic or mesoblastic origin. Knowing the title of Dr. Loeb's paper, I brought down with me this evening a specimen of a tumor of the mamma which illustrates the great difficulty attending the diagnosis of certain tumors in this respect. Furthermore, I need only to remind you of certain tumors of the ovary, combining sarcoma and epithelial new formations, such as carcino-sarcomas. Whether or not we have here such a conversion of one tissue into another is a very great question, and Dr. Loeb's work certainly opens a wide field for research in this direction. He is justly entitled to great credit for his laborious efforts in this direction.

Dr. JAMES G. KIERNAN—In embryology there is one question that has always been a little puzzling to me. An attempt to explain this by certain theories of evolution has been made, but even these, used as a working hypothesis, do not serve as a clear explanation. There is a large class of organisms—even among those that are above the plants—in which reproduction is not bisexual. It is obvious that the embryologic laws laid down as to the epiblast and mesoblast can not apply to these organisms. It is a safe rule to assume that a condition which occurs frequently in any of the lower animals may occur exceptionally in man. For these reasons the argument which was advanced against the position of Dr. Loeb from the standpoint of embryology did not strike me as entirely conclusive, since there could occur under these conditions an embryologic return to the conditions which practically obtain in the zoöphite, where structures and new organisms develop purely from budding. Dr. Loeb's researches impress me as peculiarly valuable and suggestive, viewed from this standpoint.

Dr. LOEB (closing the discussion)—I have begun my investigation regarding this question irrespective of any opinion that may be held. The principal objection to the conclusions drawn by me does not arise from the examination of the slides, but is based on theoretic reasoning. Professor Klebs said that if epithelium could form connective tissue we should expect to find it in the epithelium. So far as I know, there is no epithelial structure that is not accompanied by connective tissue. The fact that metastases of carcinomata contain connective tissue has been much discussed. That would be explained if a part of the epithelial tissue carried away by the lymph or the blood could form connective tissue. There are certain embryologic notions that seem to speak against the possibility of epithelial cells producing connective tissue. By studying this question more closely, however, I think we shall come to the conclusion that the embryologic facts do not exclude this possibility. Embryology teaches us that under ordinary circumstances a certain number of cells are derived from a single cell, which will be found at a certain typic place. From these cells certain organs are formed. But organs of similar morphologic and physiologic character may be derived from cells whose position differs in various animals, or which belong to different germ layers. But this observation does not yet prove that under other than ordinary circumstances one cell must be derived from a certain typic cell. Driesch, J. Loeb and others have proven that any of the first blastomeres or any part of an egg may form a whole embryo. Moreover, the facts of heteromorphosis show that under altered external conditions in invertebrates, one organ can be substituted by or transformed into an organ of different morphologic and physiologic character. Miss Birkford investigated these phenomena microscopically. In certain invertebrates the gemmation of whole animals with all their various tissues seems to take place from cells derived from one germ layer. The latest experiments in that line have been made by Miss Byrnes. She showed that the regeneration of legs in embryos of certain amphibia takes place from a few cells which can not very well represent cells from all the germ layers.

SPONTANEOUS cure of lupus of the face after extirpation of tubo-ovarian and peri-rectal abscesses.—*Cbl. f. Gyn.*, Jan. 28.

California Academy of Medicine.

March Meeting.

OBSCURE ABDOMINAL INVOLVEMENT.

Dr. F. DUDLEY TAIT presented a case with the following history: The patient, a farmer, 40 years of age, gave no hereditary or personal history of any taint; no syphilis, alcoholism, malarial infection nor history of intestinal disease could be elicited. He was quite well up to July, 1898, at which time he complained of pain in the left lower limb, followed very soon by edema, which has varied somewhat in degree, but has persisted since that time, becoming more marked. An ulcer appeared on the left leg, thought to be varicose, and shortly after this there was slight dyspnea. The urine was repeatedly and carefully examined, no albumin being found at any time. A few red blood-cells, together with a few bloody shreds, were found in the urine at first, but have not been noticed since the early weeks of the trouble. In September, 1898, the man entered the City and County Hospital, complaining of the edema of the left leg and the consequent inability to work, and remained in the hospital for two months; was discharged and told to try working again. At the time of discharge the left leg was still swollen. He attempted to work, but was unable to do much of anything, the edema increasing all the time. In January of the present year the right leg became somewhat edematous, and shortly after, in February, there were cramps, together with some swelling of the lower part of the abdomen. Early in March the upper portion of the abdomen commenced to swell, and at present the entire abdomen is greatly distended. At present nothing is to be detected in the urine nor in any of the secretions. The blood shows no increase of leucocytes.

The patient was exhibited and presented a most peculiar appearance. The entire abdomen was greatly distended, the swelling commencing about three inches below the nipples, rather abruptly, and extending to the groin. The scrotum was slightly edematous. In either inguinal region were scars of former buboes. On percussion the lateral aspects of the abdomen were found to be very flat, the masses of the liver and spleen being with some difficulty mapped out. Both seemed to be greatly enlarged, although regular in outline. The presence of a very small amount of fluid could be detected. The mass was very evidently a more or less solid one. Aside from the mechanic effect of the large mass in the abdomen and the edema of the leg, there were no symptoms of any kind that would tend to throw any light on the condition. He had lost but fifteen pounds in weight since July and was in apparently pretty good condition.

No diagnosis had been made, but the possibilities were indicated by Dr. Tait, who suggested that the trouble might be a neoplasm of the left kidney with metastatic growths in the spleen, liver and retroperitoneal glands; or it might be a case of cirrhosis of the liver, of the hypertrophic type. Dr. Tait urged this case as an illustration of the great value of the exploratory incision in affections of the abdomen with ascites, where the diagnosis was not easily made.

Dr. HARRY M. SHERMAN said that he could not exactly see how either of the diagnoses suggested by Dr. Tait could entirely fulfil the conditions. He had thought of the neoplasm of the kidney, but that theory would not explain the edema of the leg. He was of the opinion that the ulcer of the leg was something wholly aside from the general disease, for he could detect no varices of the leg and did not think there could be any deep varices without some superficial varicose veins being in evidence.

Dr. TAIT and Dr. DOUGLAS W. MONTGOMERY were of the opinion that varices of the deep veins did occur independently, and that in the present case the ulcer might have been caused by such a varicose lesion without there being any marked superficial varices. Dr. Tait suggested that there may have been but one limited area in which the veins had been effected and that at that point the ulcer had occurred.

In the discussion, the trend of opinion was that the history of the symptoms seemed to indicate that some sort of growth had commenced on the left side and, through pressure on the left iliac vein, had produced edema of the left leg. Then this growth had enlarged until it made pressure on the right iliac vein, producing the slight amount of edema which had appeared as a recent symptom. The general abdominal distension would be accounted for by the growth itself and the enlargement of the retroperitoneal glands. There was a difference of opinion as to the significance of the varicose ulcer. It was also suggested that the whole condition might be caused by the involvement of the retroperitoneal glands alone, thus thrusting the liver and spleen forward and producing the evident distortion.

SKENE'S ELECTROHEMOSTATIC FORCEPS.

Dr. F. DUDLEY TAIT said: "The hemostatic forceps of Skene is intended, as doubtless you all know, to use the vessels by cooking rather than burning the tissues. The particular forceps shown is constructed to operate with an electric supply of 4½ volts and 8 ampères, with which current it is supposed to be raised to a temperature of between 180 and 190, and is to be left *in situ* for two or three minutes. It does not burn the tissues, but combines, with pressure, a certain cooking action upon the enclosed mass, which is supposed to entirely check hemorrhage." He has tried the instrument on but one case and it was not entirely satisfactory. The case was one of very easy vaginal hysterectomy. The broad ligaments could be readily brought down under the finger and on account of that fact he thought it a particularly promising case for trial of the new forceps. He had previously experimented upon muscular tissue in order to ascertain the proper temperature required to secure the effect desired. In the operation, he applied the electrohemostatic forceps twice, both from above and from below. Nevertheless, he left small clamps on three corners of the broad ligaments, leaving the fourth unclamped. The tubes and ovaries were not removed. Three hours later the pulse was 140 and there was hemorrhage. The bleeding ovarian artery was found, with some difficulty, and a clamp applied. The patient was kept on the operating table for about an hour, waiting for some sign of improvement. This did not occur, however, and the abdomen was opened, under cocain anesthesia, but no further bleeding could be found. The patient made a slow recovery. There was no pain from the clamps, as is so generally the case, the patient not even complaining of discomfort.

His objections to the use of the forceps are: The degree of heat is difficult to estimate, and to control. The proper current is supposed to heat the instrument to a temperature of from 180 to 190 degrees, but as a matter of fact the actual temperature of the instrument during the time it is applied, for two or three minutes, will vary with the thickness and nature of the tissue enclosed between the blades of the forceps. If the tissue is thick and watery, they will cool off more rapidly than if the tissue is thin and dry, and consequently there will be less cooking in the first case than in the second. A further objection lies in the fact that it is impossible to control the amount of tissue affected by the heat. The heat radiated from the hot blades is sufficient to affect the tissue to some distance on either side of the instrument itself. As to the intrument as a means of ligating the umbilic vessels in obstetric cases, he does not see the special advantage of this device for the purpose.

Dr. HAROLD BRUNN—I did not know the instrument exhibited is recommended by Dr. Skene in cases of vaginal hysterectomy, but should think it not satisfactory in these cases, as there is but little room in which to work and it is not easy to see just what is being done, so a good ligature well tied would be much better. Clamps do cause a good deal of pain, but they are certain, and you know you will not have hemorrhage. On account of the necessary apparatus required to operate this instrument, it can not always be used, and consequently one must have two methods of performing the same operation. He should have a good deal more confidence after the application of clamps or ligatures than after using this forceps.

Dr. TAIT, in reply to Dr. Brunn, thought the instrument not a good one in the majority of vaginal hysterectomies, but his case was a particularly easy one, and the tissues well cooked before the clamps were applied. This had doubtless something to do with the absence of pain.

INSTRUMENTS FOR MEASURING MONOCULAR FIELD OF FIXATION.

Dr. F. B. EATON presented and demonstrated two new instruments, one being his own and the other the joint invention of Mr. F. M. Graham and himself. The former is based on trigonometric measurement of the angles of reflection, and hence the prominence of the nose, cheek or brow is no obstacle to its use, while the latter is so constructed that two similar arcs are accurately centered with each eye simultaneously. With these instruments Dr. Eaton had been able to measure the amplitude of rotation of the eyes with an exactness and uniformity of results which he believes has not heretofore been possible by any other means. One of the chief defects of the perimeter and other similar apparatus has been removed by fixing the new instruments to the head, so that no movements of the latter can alter its relation to the arcs. Another important feature is that the instruments are adjusted and centered for each eye simultaneously, so that under all circumstances the relative rotations of the eyes are absolutely ascertained to within half a degree in every direction, and in a series of cases it has been possible to make repeated measurements on successive days without any variations in the results.

The practical application of the apparatus is to enable the surgeon in cases of strabismus or lesser deviations of the lines of vision, to determine which muscle or muscles are at fault, and their relative strength or weakness, so that, in the event of operation these alone shall be interfered with. In view of the reproach brought upon eye-muscle operations through ignorance of these principles, an accurate estimation of the fields of fixation is now recognized by competent authorities to be essential to a rational and successful treatment of many cases of eye strain.

UNUSUAL HEMORRHAGE FROM NOSE.

Dr. GEO. H. POWERS reported a case following removal of a polypoid growth. The case was referred by a practitioner in the country, who had removed a polyp from the young man's nose, but there was another one present, somewhat far back on the middle turbinated body of the left side. It was removed without incident, save that the snare seemed to come away with some difficulty, and that a small piece of bone was removed, which is an occasional occurrence. Immediately after the withdrawal of the snare and the polyp, a very severe hemorrhage followed. The blood simply poured from the nose in a continuous stream. He attempted to plug the nostril, but the plug was at once washed away. He then hastily called Dr. McKee, with whose assistance he succeeded in plugging the posterior and anterior nares.

By this time the man was very weak from loss of blood. He kept him in the office for some hours until he had gained strength and then sent him to the Waldeck Hospital. During this time he told me what he had not mentioned before, that when my friend in the country had removed the polyp on the previous occasion, the operation had been followed by a similar profuse hemorrhage which had alarmed him very much. I could not determine that the man was a bleeder, for he did not seem to have any recollection of any unusual hemorrhage upon cutting himself, etc. The patient was removed to the Waldeck on Monday afternoon and the plugs were not removed till Thursday. The anterior plug was slowly pushed out, though whether this was due to hemorrhage behind or from retained secretions, I could not say. From time to time a small piece of the plug would be snipped off, as it protruded. By Thursday the secretions had become very foul, the man was somewhat feverish, and I was afraid of sepsis, so I decided to remove the plugs. The anterior plug was very slowly removed, but little force being exerted, but nevertheless, its removal was at once followed by the excessive hemorrhage which had followed the original operation. I again plugged the nostril and had almost left the building when I was called hastily to the patient's room. The blood was oozing through the plug. I called Dr. E. E. Kelly, and with his aid again plugged the nostril, both anteriorly and posteriorly, using gauze saturated with iron. For two days there was oozing through the other nostril, and the plug was saturated with blood, but this eventually stopped. On the following Thursday the plug came away from the posterior nares, and its removal, or rather discharge, was not followed by any hemorrhage. On Monday the patient was allowed to leave, though the plug in the anterior nares had not been entirely removed. It came away very slowly and with much difficulty, so no force was employed. I instructed the patient to take plenty of time in allowing the plug to come out. I can not account for the excessive and dangerous hemorrhage in this case, except by the hypothesis that an anomalous branch of some considerable vessel had been caught in the snare and cut. What vessel it could have been I am at a loss to say, nor can I ascertain from any one of several anatomists whom I have consulted. I do not think the man was a bleeder. I think the vessel was cut off at the bone surface and so did not have any opportunity of closing."

Dr. F. B. Eaton saw this case with Dr. Powers, and was sure it was a case in which nothing short of long retained plugs, making pressure on the bleeding vessel, would have been of any benefit. He too, did not consider the man a bleeder, and agreed with Dr. Powers that the vessel was severed at the bone surface and so could not close. He does not think the iron in the gauze, used at the time of the third plugging, was of any benefit. The pressure was the only thing that could do any good.

Orleans Parish Medical Society.

Meeting of March 25, 1899.

RESECTION OF THORACIC WALL FOR MALIGNANT TUMOR.

Dr. F. D. PARHAM detailed two cases of his own, referring to others found in literature.

Statistics show the immediate mortality to be, for the intrathoracic operations (52 cases), 30.8 per cent.; for the extrathoracic (23 cases), 28 per cent. The remote results are more favorable to the intrathoracic operations, after which recurrence is less frequent, probably on account of their more complete character. Among the causes of death in the cases found in literature are sepsis, antisepsis (in the early Listerian period), hemorrhage, shock, pneumothorax. The influence of the latter, causing at times grave symptoms, at others none of consequence, is modified by adhesions, by the character of the respiration before the pleura is ruptured (whence chloroform should be given the preference over ether), the condition of the lung itself (edematous, hepatized, sclerosed), and of its fellow (accustomed to doing vicarious work), and by reflex irritation, which is greater in proportion to the size of the opening. Many plans have been suggested for preventing this condition, the bugbear of all contemplating operations of the kind under consideration. Early operation is urged as of great importance; the formation of preliminary adhesions has been found by experimentation on the lower animals to be impossible without infection. The substitution of hydro- for pneumothorax, as suggested by Witzel, who used boric acid solution for the purpose, has been objected to as exciting reflex irritation.

A method worthy of some consideration is Lanson's of injecting sterilized air, comparable with Murphy's injection of nitrogen, by either of which plans the patient may be gradually accustomed to the cutting off of a large respiratory area, the other lung learning to bear the burden.

A means which has stood the crucial test of practical clinical application is the Fell-O'Dwyer apparatus for artificial inflation of the lung through a laryngeal tube, for the suggestion of which, in this connection, Dr. Parham gives the credit to Dr. Rudolph Matas. With the aid of this instrument the plan of Beyer, of stitching the lung to the thoracic opening, may be carried out successfully.

As to drainage, probably the best plan is to apply sutures not too closely, leaving gaps through which drainage may take place.

Dr. RUDOLPH MATAS had, as to Dr. Witzel's suggestion, in a case of stabwound of the chest involving the internal mammary artery, the pericardium and the pleura, filled the left pleural cavity with hot saline solution after making an osteoplastic fenestrum. Pneumothorax was not controlled by this, nor indeed by subsequent complete sealing of the chest opening, finally causing, in association with shock, a fatal termination of the case. It is likely that the use of the Fell-O'Dwyer apparatus, followed by suture of the lung to the chest wall, would have been the means of saving the patient. This method of insufflation of the lungs intralaryngeally by means of the bellows is ideal, accomplishing its purpose well; it permits free exploration and thorough attention to the organs involved, while maintaining the respiration. It thus opens to surgeons a wide field, making it possible to open and explore the pleural cavity with something like the freedom with which its anatomic similar, the peritoneal, is invaded. In cases of chronic empyema with thoracic fistula, Delorme's plan of liberating the imprisoned lung from its adhesion-fetters could be carried out with the support of insufflation, and the procedure completed by suture of the viscus to the chest wall. How superior this method promises to be to the classic operations of Estlander, Schede and others, which not only mutilate the chest but fail to restore the lung function! Other indications are offered by mediastinal tumors, foreign bodies in the thoracic esophagus, suppurative mediastinitis, in all of which the new method is destined to play a great life saving rôle.

Dr. PARHAM, referring to the extension of the field of thoracic surgery, mentioned Helferich's case, in which the middle and inferior lobes of a lung had been removed; true, the patient died of shock within twenty four hours, but hemorrhage had been controlled by two large clamps applied at the root of the lung. Many surgeons have stopped heretofore when the lung and diaphragm were involved, but the conspicuous success of others encourages us to move on in this line.

EUNUCHOID VOICE.

Dr. A. W. DE ROALDES presented, for Dr. Gordon King, detained by illness, a patient with the so called eunuchoid voice: O. C., white, male, aged 19 years, employed as a laborer in an oil-mill, and of robust general health; gives a good history, denying venereal disease. As a child he was well and active up to the age of 6 or 7 years, when he suffered with a dropsy which disappeared before long, leaving him emaciated; in the course of a year his health was completely restored. At the age of 15 years, after a severe attack of measles, his voice became irregular in tone, occasionally assuming a high falsetto character. This voice, the character of which was attributed to puberty, has been kept to the present time. He is sometimes aphonic for two or three minutes, regaining his voice

after clearing his throat. At other times his voice changes to a lower register; at such times momentary aphonia sometimes appears. He is of a timid nature; has been much teased on account of his peculiarity. The genitals are normal and well developed. The larynx is normal, but rather overgrown for his age and physique; its mucous membrane presents no congestion worthy of mention. The trachea is large. In phonation, approximation of the vocal cords is good; when the lower notes are produced the cords become shortened. This voice is not the true eunuchoid, which is due to undeveloped larynx; it is more properly called the falsetto voice. The larynx in this case is fully developed, that of a basso, with long cords. It is probable that the attack of measles which occurred at the time of puberty occasioned a severe congestion of the larynx and that the patient acquired the habit of using the falsetto voice, which gave him ease in speaking. He will be trained by a system of vocal gymnastics and again presented to the society.

Denver and Arapahoe Medical Society.

Regular Meeting, March 28, 1899.

CLINICAL VALUE OF OBJECTIVE METHODS OF MEASURING REFRACTION OF THE EYE.

Dr. E. W. STEVENS read a paper on this subject and said: Most ophthalmologists rely strictly upon the subjective methods of measuring refraction by means of the test card and trial lenses, the radiating lines, the stenopaic slit, and perhaps the occasional use of one of the various optometers, resorting to one or more of the objective methods, as in the case of children who have not learned their letters, and in amblyopic eyes. This practice is probably owing, in a large measure, to failure to rightly appreciate the true practical value of objective methods of refraction and how to apply them.

These objective tests include the use of the ophthalmoscope and the ophthalmometer and the employment of the shadow test. The ophthalmoscope is invaluable, as our only means of studying the various media and the details of the deeper structures of the eye, but the instrument should never be relied upon for the estimation of refraction. Even in the hands of the most accomplished expert it is never more than a rough estimation both as to the kind and degree of error. Several years ago, I began, at the suggestion of Dr. de Schweinitz, a comparison of the results obtained by the measurement of the astigmatism by the ophthalmometer, with the subsequent refraction of the eye under complete mydriasis. One thousand eyes were thus examined and the results in 400 cases are given in the article upon "The Use of the Ophthalmometer," in de Schweinitz' book on "Diseases of the Eye." In many cases the astigmatism under a mydriatic differed but little from the corneal astigmatism as measured by the ophthalmometer. In some cases the difference between the two methods amounted to 2D. For these reasons it is not possible to lay down any empiric rule, as some have attempted to do, by means of which we can calculate with any degree of accuracy the total astigmatism by using the ophthalmometer.

The shadow test surpasses in accuracy all other objective methods. For the elaborating of the test, and placing it on a sound scientific basis, the profession is indebted to our fellow member, Dr. Edward Jackson. The chief advantage of the test is the accurate refraction obtained independent of the patient's answers. For this reason it is invaluable in a large group of cases representing children who have not learned their letters, wilful spoiled children of older years, illiterates, feeble-minded, malingerers and cases of amblyopia, nystagmus and facial spasm, and the ophthalmologist who ventures to prescribe glasses in these cases without the shadow test stands on the same plane with the refracting optician.

The most conspicuous point in the etiology of convergent strabismus is the early age at which it usually begins. The shadow test enables us to prescribe glasses correctly, even for young children, and to then begin treatment at an age when the strabismus is most easily cured.

In cases of irregular astigmatism, the shadow test enables us to study the refraction of different areas of the pupil and to find which of these areas is most likely to be of service for useful vision and to measure the refraction in it. No other test, subjective or objective, serves these purposes.

Moreover, the visual zone in certain eyes, as Dr. Jackson has pointed out, is confined to a very small area, often one-tenth of the pupil, and regular astigmatism may be overlooked with the trial case and the test types as usually employed, though readily detected by the shadow test.

A certain number of cases are met with in which spheric aberration, beginning near the center of the pupil may be a cause of error in selecting lenses by the trial case and test card. It is easily recognized by the shadow, and can then be considered in the prescription of glasses.

Dr. EDWARD JACKSON—The ophthalmoscope is of service in measuring approximately the amount of swelling of the optic disc in cases of papillitis. A swelling of 1 mm. would be represented by a + 3D lens. In these cases accuracy of measurement is not so important as in the prescription of glasses. Even under the most favorable circumstances, with a mydriatic and in the dark room, the ophthalmoscope is a very inferior means of estimating refraction. I have lately seen a case in which an ophthalmologist had given the opinion that glasses were not required, basing this opinion on an examination with the ophthalmoscope. I found in this case, that the patient, who had attacks of petit mal, had a refractive error of 1.50 with astigmatism of 3D. Since wearing this glass his epileptic attacks have greatly decreased and he has been promoted in school. The astigmatism which the ophthalmometer shows, in a certain number of cases, represents the total astigmatism of the eyes, but the exceptions to this are so many that no rule can be given for determining astigmatism by this instrument. With the shadow test we have the pupil spread before us as a map, and can study the refraction in any area. A good working knowledge of this test is often acquired in a month's practice, but cases will always be met with in which its application is extremely difficult. The shadow test equals in accuracy at least the subjective test by the trial case and test letters, and has the advantage of not depending upon the patient's co-operation.

ABDOMINAL CASES FOR 1898.

Dr. I. B. PERKINS presented a report of cases operated on between Jan. 1 and Dec. 12, 1898. Chloroform anesthesia was used exclusively in thirty-one cases, ether in two, and in twenty-three cases anesthesia was begun with chloroform and ether was used after the first stage. The operations comprised ventrofixations, hernias, ovarian cystomas, tubal and ovarian abscesses, appendicitis, extrauterine pregnancy and closure of ureter.

In considering these with other cases previously operated on, he reached the following conclusions:

1. Chloroform is the best anesthetic for abdominal work, at least in this altitude.

2. An obstruction of the bowel may cause pain in a remote part of the abdomen.

3. Old and enfeebled patients may bear operation well, if taken early in the onset of the disease and action is prompt.

4. Ventrofixation is to be preferred in the majority of cases where operation for retroversion is necessary.

5. Small cysts of the ovary may and often do cause more aggravated nervous symptoms than many other conditions which are more serious as to the life of the patient.

6. Where possible to do so, the ovaries should be left—if not in whole, in part—as a small portion of healthy ovarian tissue is sufficient to keep up the menstrual flow and prevent the distressing nervous symptoms accompanying forced menopause.

7. Sponges should always be counted, and gauze left in, as a drain should have a ligature attached to each piece and left external so as to facilitate and make certain its removal.

8. Small abscesses in the tubes and ovaries may be opened from the vagina by the aid of an abdominal exploratory incision.

9. Abdominal drainage increases shock, and should be avoided when possible.

10. In appendicitis the best results are to be gotten from early operation and that where, for some reason, the operation was not performed at the time of the attack, it should be performed in the interval.

11. Abdominal hysterectomy for carcinoma of the cervix is preferable to the vaginal route.

Dr. WETHERILL considers retroversion to be one of a group of conditions; when there are no other pathologic conditions, retroversion does not give rise to any abnormal symptoms. He can not concur with the conclusion of Dr. Perkins as to the use of chloroform, but considers ether the safer and better anesthetic. His rule is to give ether in all cases, except in cases of pulmonary or renal disease, and in children. He can not see the connection between the use of drainage and the occurrence of shock.

Dr. ROGERS agreed with Dr. Wetherill in reference to ether. In hernia, the radical operation should be used more frequently than it is. He advises all his hernia cases to undergo an operation and he has never had any reason to regret the course. He uses catgut with caution. However well sterilized, there is always some danger of infection.

Dr. LEONARD FREEMAN would not operate on cases of appendicitis too early and when the attack is mild. Cases operated

between the attacks show a mortality of 2 per cent. and therefore no one can recommend an operation with certainty of recovery. Post-operative hernia is also to be borne in mind. When a case has not shown alarming symptoms for forty-eight hours, no operation should be undertaken before the fifth day. He agreed with Dr. Rogers in advising all hernia patients to undergo an operation. He wished to emphasize the point that uremia is a frequent result of appendicitis. It would be desirable to investigate the assertion that movable kidney or some disease of the kidney is present in all cases of appendicitis. He could suggest that the thread attached to sponges, recommended by Dr. Perkins, be colored, so as to distinguish it from ligatures. If fewer fingers could be used it would certainly be of advantage, but he can not see the advantage of using fewer instruments.

Cleveland Medical Society.

Regular Meeting, March 24, 1899.

MONOPLEGIA OF ARM FOLLOWING CLAVICLE FRACTURE.

Dr. GEORGE W. CRILE presented a rare case that involved the brachial plexus by pressure on it of the lower fragment. There was complete motor and sensory paralysis and also vasomotor disturbance. Union of the fracture had been faulty and when the pressure was relieved the symptoms began at once to ameliorate.

OBSERVATIONS ON SURGERY OF THE BRAIN.

He then read a paper on this subject based on clinical and experimental evidence.

In a series of experiments upon dogs, in which the brain was subjected to an increased pressure, the respiratory centers were affected earlier than the cardiac. The same was observed, regardless as to the manner or place of application of the pressure; that is to say, whether the pressure was introduced into the ventricular system, upon the cortex or within the cerebral tissue. The same was observed in blows on the head in producing compound fractures, and in gunshot wounds. It was further observed that when an animal's brain had been subjected to an increased pressure the administration of an anesthetic produced respiratory failure, alteration or arrest, proportionate to the amount of such increased tension. In experiments in which the cortical centers were stimulated it was found that cooling and drying very rapidly rendered the cortex non-excitable.

Investigating the different methods of opening the skull experimentally, it was found that in using the trephine there was but little or no change in the respiration or the heart's action. The same was observed in using a sharp chisel set at a proper angle and using the mallet in light gentle taps. The skull could be opened with the mallet and chisel with as much safety and with as little effect upon respiration and upon the heart as with the trephine.

Applying these experimental data—and all of them were data which were obtained by graphic records upon smoked drums, according to the methods in vogue in experimental physiology—the author found that in operations on cases in which there was an increased intracranial pressure as occurs in tumors, abscesses, or in hemorrhage, it is necessary to carefully guard the anesthetic, and until the stage of surgical anesthesia is reached, an assistant is detailed to keep up artificial respiration if necessary, and in cases of respiratory failure instead of abandoning the operation, the skull is opened as quickly as possible and sufficient bone is cut away to relieve the intracranial pressure, after which respirations are apt to resume their natural rhythm. Attention was called to the slow full pulse indicating increased intracranial tension.

In treating septic leptomeningitis, he recommended cutting away the skull as extensively as the disease demands, regardless of the amount of destruction this necessitates, as it is apparent that the disease must be checked or life will be lost, and after the skull has been cut away the brain will bulge and so continue until the infection is arrested. The further treatment is best done by the application of 1 to 10,000 warm moist bichlorid dressings rather taking the risk of superficial irritation than the spread of infection, which, if unchecked, must in a very short time destroy the patient.

In arresting the hemorrhage in the diploe, 10 per cent. olive oil added to beeswax and the mixture sterilized, will at once arrest the hemorrhage when pressed upon the bleeding surface.

The mallet and chisel were used for opening the skull in almost every instance, because of the greater adaptibility of this method and its harmlessness when sharp chisels placed at correct angles are employed. It requires less time, is more adaptable and is susceptible of increasing possibilities with the increase of skill in its use.

Dr. ALDRICH said that respiration in brain cases failed before the heart, because the latter is largely automatic while the former is not. Late pathologic studies show that in cerebral concussion there are minute hemorrhages in the brain, and their size and location determine the gravity of the symptoms in any given case.

Dr. WENNER suggested that a preliminary lumbar puncture would relieve the intracranial pressure and so render the administration of the anesthetic much more safe.

Dr. PERRIER wished to know why if, as is generally understood, anesthetics diminish intracranial pressure, their use should add danger in a case of increased intracranial pressure?

Dr. CRILE, in closing, said he had only meant to state the fact of respiration failing before circulation. In cerebral concussion from falls the portion of the brain lacerated or filled with punctate hemorrhages is not that necessary to vital function as a rule, but the frontal lobe. This is because the frontal and temporosphenoidal lobes lie in contact with the floor of the skull, while the posterior lobes with the vital centers are protected from the floor of the skull by a water bed of cerebrospinal fluid. In every case of head injury where there is the characteristic vagal pulse, that in itself is sufficient reason for opening the skull and relieving pressure. The lumbar puncture will not succeed because, before pressure symptoms appear, the cerebrospinal fluid at the base of the skull has already been driven out. He, five years ago, operated on a case of tubercular meningitis with symptoms of cerebral pressure which were promptly relieved, and the child is living to day with no return of the disease. In septic meningitis the intracranial pressure must soon force infection along the meninges so that such cases must be operated on early if success is to be attained. Anesthetics are cerebral irritants, as is pressure, and the lowering of function they produce, added to that already existing from the disease, produces collapse, which is not due to the effect of the anesthetic upon the circulation, but upon the nerve-centers.

Philadelphia Obstetrical Society.

Meeting held April 6, 1899.

CLINICAL SIGNIFICANCE OF PEPTONURIA IN PELVIC ABSCESS.

Dr. FRANK HAEHNLEN contributed a paper with the above title, with report of illustrative cases, and referred to the scanty literature on the subject. Substances frequently found in the urine, and called peptone, have doubtless been albumoses. More recently peptonuria has been looked upon as indicating disintegration of either leucocytes or pus cells. Von Jaksch found peptonuria present in phthisis, pneumonia, purulent meningitis, scurvy, syphilis, and phosphorus poisoning. It has been found in the urine of pregnancy. In pneumonia its presence probably indicates the stage of resolution or a time of rapid disintegration on the part of the leucocytes.

In sepsis (occulta) peptonuria is of great clinical significance. Its presence is, however, not always proof positive of suppuration somewhere in the system, but it should confirm other signs and symptoms in determining the diagnosis. One examination of the urine may give inaccurate results, because the peptone may be absent at one time and present the next, so that frequent examinations should be made. When abscesses break down peptone finds its way into the blood, to be subsequently excreted by the kidneys. It should be also remembered that in cases of sepsis there is a marked leucocytosis which also accounts for peptonuria. He reported cases on which the paper was based and stated that peptonuria had been present in every case where pus had been found.

Dr. JOHN C. DACOSTA had found peptonuria present in certain cases of nephritis examined.

Dr. MCKELWAY, while regarding the test as one having some importance, thought the diagnosis was in most instances made without reference to peptonuria.

Dr. J. M. BALDY regarded the test as having considerable importance, especially in differentiating between extrauterine pregnancy and abscess.

Dr. HAEHNLEN stated that he did not claim that peptone in the urine always meant suppuration, but that it was a valuable diagnostic aid in doubtful cases.

PERINEAL LACERATION AND IMMEDIATE REPAIR.

Dr. F. C. HAMMOND, in a paper on this subject, said that laceration during parturition resulted as a rule from precipitate labor or the use of forceps. One of the best safeguards of prevention is to exert forcible pressure upward during descent of the head, allowing it to recede time and again. In case of tear it is always best to resort to immediate repair of small lacerations. In certain instances in which there is a complete tear the operation might be postponed for a period of twelve hours.

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SATURDAY, APRIL 15, 1899.

SPREAD OF TUBERCULOSIS BY MEANS OF SPUTUM AND FINE DROPLETS EXPELLED DURING COUGHING.

About a year and a half ago FLÜGGE[1] of Breslau called attention to the fact that our knowledge concerning the dangers of infection connected with the sputum of tuberculous patients needed many additions. In the first place, it could not be said that it was definitely established that dried sputum can cause tuberculosis from inhalation of the resulting dust. Secondly, he had shown that the fine droplets which are expelled during coughing by tuberculous patients play a certain rôle in the spread of the disease.

Recently a number of experimental studies bearing upon the manner in which tuberculosis is spread have been published from FLÜGGE's laboratory.[2] FLÜGGE himself gives a short summary of the principal facts which these experimental studies have established. Some of these studies deal with the dangers of the dried tuberculous sputum, and after having considered all the facts in the case, FLÜGGE concludes that an infection with dried sputum ground up into a fine dust is undoubtedly possible; actually this must be regarded as a relatively rare mode of infection, because the formation of such fine dust particles as are easily transported in air-currents can only be produced when sputum is dried so completely as would seem to be but very rarely the case in the actual conditions in modern life. He is therefore inclined to reduce somewhat the danger of infection through dried phthisic sputum. He agrees fully with CORNET, whose investigations into the rôle of the sputum in the spread of tuberculosis are well known, that only the dried sputum is dangerous, and that those tuberculous patients who regularly and constantly expectorate in suitable vessels, so that drying and pulverization are hindered, constitute no danger whatsoever to their fellow beings on that score.

Other experiments show, however, the truth of what FLÜGGE previously claimed in regard to another mode of infection with tuberculosis, namely, that the expulsion of fine drops of saliva and mucus, containing bacilli, during coughing by tuberculous patients, constitutes a great danger to those who come in contact with these patients. KOCH and others long ago showed that spraying of tuberculous sputum into small rooms where guinea-pigs are confined produces tuberculosis with great certainty. It would seem that this result depends in a measure upon the fact that the spraying of sputum results in the formation of much finer drops and particles than takes place for instance during the pulverization of dried sputum masses.

In one of the experiments made in FLÜGGE's laboratory, the finely divided sprayed sputum was carried upward by air-currents of known strength, and then caught in a filter. In these experiments it was very easy to demonstrate the presence of tubercle bacilli upon the filter when air-currents of only 3 mm. per second were used, the particles being carried a distance of one meter. This shows that a feeble spray is able to so finely subdivide undiluted phthisic sputum that a relatively large number of very fine droplets are formed and are transportable by feeble air-currents.

When suspensions of the bacillus prodigiosus are taken into the mouth, then it is easy to obtain cultures of the prodigiosus upon agar plates held a certain distance from the mouth during coughing, talking or sneezing. There seems no doubt that the bacteria present in the fluids of the mouth are scattered, some during talking, more during coughing, and still more during sneezing. Of thirty-five tuberculous patients, fourteen, i. e., 40 per cent., deposited droplets of mucinous sputum containing tubercle bacilli upon a slide held a half meter away from the mouth. The size of these droplets containing bacilli reaches as much as 30 mm. in diameter. The bacilli were found mostly in groups in the mucinous central part of the droplet. Greater spraying or spreading of the sputum occurred when the sputum was relatively fine or mixed with much saliva. The intensity of the cough is of considerable influence; the stronger patients who were walking about threw a spray of sputum with tubercle bacilli farthest. Short, violent coughs, while the mouth is partly closed and the lips somewhat puckered up, cause the droplets to go farther. Similar experiments with like results have also been made by others (ENGELMAN, WEISMAYR,

[1] Deutsche Med. Woch., 1897.
[2] Ztft. für Hygiene u. Infektionskr., 1899, xxx. 107.

B. FRAENKEL). It is interesting to note, in connection with this, that SCHAEFFER found that leprous patients expel a remarkably large number of lepra bacilli during coughing.

FLÜGGE then proceeded to demonstrate that the bacilli in the expelled droplets were virulent. A tuberculous patient was taken and his face and hands disinfected; he was then placed for several hours in a large glass box in which were saucers containing some salt solution. This salt solution was subsequently injected into guinea-pigs. Of nine such experiments four of the animals died of tuberculosis of the peritoneum. The crucial demonstration of the liability of tuberculous infection occurring in this manner is furnished by another set of experiments in which FLÜGGE succeeded in infecting guinea-pigs directly by the coughing of tuberculous patients. The guinea-pigs were placed in a disinfected room and put into a specially constructed box so their heads were turned toward the coughing patient, the distance between the latter and the heads of the guinea-pigs varying from 20 to 45 cm. The animals were exposed every second day for about three hours for from several weeks to months. The result was, that of twenty-five guinea-pigs which did not die from other causes, six developed symptoms of an inhalation tuberculosis. Thus the liability of infection through the expulsion of particles of tuberculous matter by means of coughing seems fully demonstrated from all points of view.

The practical results of these experiments so imperfectly outlined here would be that a person in the neighborhood of a coughing consumptive may inhale tuberculous droplets which are expelled from the consumptive during efforts at coughing, sneezing, or talking. It is to be remembered that not all consumptives cough; that there is a varying number of bacilli in the sputum in different patients, at different times of the day, etc. It is also to be borne in mind that the distance between the coughing patient and the exposed person plays an important rôle. At a distance of 1.5 meters the slides exposed were without exception found free from bacilli. Furthermore, the length of exposure may be an important factor.

FLÜGGE formulates the following conclusions: Rooms in which tuberculous sputum becomes dried upon the floor or other articles, and in which the air contains visible particles of dust, either caused by dry dusting of the room or by currents of air or other means, offer danger of tuberculous infection. The occasional collection by tuberculous patients of the sputum in their handkerchiefs does not increase the danger of infection materially. Intimate association with coughing consumptives, especially when one frequently approaches the consumptive nearer than one meter, is dangerous. This applies especially to nurses and to workers in factories and other places where the room between the individual workers is small. Both these sources of infection may be completely neutralized or their danger at least greatly reduced through simple prophylactic measures.

Infection through dried-sputum dust may be avoided by collecting all the sputum in suitable vessels or cloths, which are carefully disinfected after being used, as first emphasized by CORNET. Rooms in which consumptives live should not be dusted with dry cloths, as is often done. They should not be occupied by healthy persons as long as the air contains visible particles of dust.

Infection by way of coughing is easily preventable by the patient holding a cloth, such as the handkerchief, or at least the hand, before the mouth during the coughing. One should not approach coughing consumptives nearer than one meter during coughing spells, especially when the handkerchief is not held before the mouth. In offices and factories the distance between the heads of the occupants should at least be one meter. Special rooms or hospital wards in which there may seem to have taken place a marked deposition of tuberculous sputum, may be thoroughly disinfected with formaldehyde or by other known reliable methods.

PRESENT STATUS OF WIDAL REACTION.

Since the discovery of this test for detecting the presence of typhoid fever, several years ago, all sorts of statements enthusiastically praising or severely condemning the reaction have appeared. On the whole, medical opinion, particularly in this country, has been very favorable. Nevertheless, we have been waiting with considerable impatience for a large statistic report from some recognized authority, that would decide the question with a reasonable degree of certainty. Such a report has just been published by CABOT (vide JOURNAL April 1, p. 731), than whom no one is more competent. He has apparently exhausted the literature on the subject and his tables have been compiled from the writings of over a hundred observers. These observers represent all parts of Europe and America, and illustrate the three methods of testing, as well as numerous varieties in technic, for almost every observer has some variations which he believes, or pretends to believe, of material advantage. To show the authoritative nature of CABOT'S tables, one need but mention a few of the prominent workers quoted: JOHNSTON, WIDAL, CABOT, SHATTUCK, ABBOTT, THOMPSON, MUSSER, FRAENKEL, LOOMIS, WHITTAKER, DACOSTA. In all, 5978 cases of typhoid have been collected, of which 97.2 per cent. have given a positive reaction. This statement must surely speak for itself, and in a most flattering manner. We must remember that a very large percentage of these cases were diagnosed clinically as typhoid, and that this diagnosis could only be verified on the post-mortem table in a comparatively small number of cases.

It is more than possible that some of the cases clinically diagnosed typhoid, and giving the negative reaction, might have been instances of other diseases, particularly those sometimes clinically resembling typhoid, as estivo-autumnal malaria and influenza. This same argument might be used on the other side: that cases not typhoid, but clinically diagnosed as such, gave a positive reaction.

Another more important point is as to what is actually meant by a "reaction": what dilution is used and what is the limit of time. Some observers might designate as a reaction what others would not. For instance, if with a proper control, paralysis of motion ensued almost immediately, but without agglutination, as has been occasionally seen by the writer in unmistakable cases of typhoid fever, one observer might call this a reaction while the next would insist that agglutination was absolutely necessary. Again, clumps of considerable size may have formed, but around the margins and between the clumps some motion of the bacilli was in evidence, the full time limit having expired. The personal equation must necessarily enter into this study as in no other bacteriologic condition. Whatever plan is used and whatever be the technic, the observer should cling to that method alone and become proficient in that, so that any of the many little sources of error may be eliminated, as it were, intuitively. To do this it were best, as in the experience of the writer, to use the first fifty or more cases for study and improvement in technic, and in no way to attempt to make them of statistic value. By this time one will have acquired a proficiency and intuition that can alone guide him to proper conclusions.

There is another matter upon which little or no emphasis has been laid by writers upon this subject, but which is of the greatest importance: The patients themselves should not be examined physically by the conductor of the Widal reaction, not at least until he has given or decided upon his opinion as to the positive or negative character of the test. This can only be done in hospitals and other large institutions where there are assistants whose work does not necessarily bring them into personal contact with the patients. The reason for this precaution is obvious. No matter how conscientious a man may be in his endeavor to work out the truth in this—or similar questions—his mind will undoubtedly be influenced by the appearance of the patient, and the physical examination and inspection of the temperature-chart. If all are characteristic of typhoid, he will be unconsciously swayed toward a positive reaction where, had he not seen the patient, he would have at least entertained a reasonable doubt, and vice versa. It must be confessed that since this rule has been inaugurated, the results of the Widal reaction have more closely coincided, if not with the clinical diagnosis, at least with the post-mortem findings. For instance, several cases clinically diagnosed as typhoid fever and in which attempts at the reaction were persistently negative, on the post-mortem table showed the characteristic lesions of acute miliary tuberculosis, to the honor of the Widal test and the chagrin of the clinician. In view of the difficulty so often presented in a differential diagnosis between acute miliary tuberculosis and typhoid fever, this reaction may well be looked upon as one of the most important diagnostic points; for choroidal tubercles are exceptionally present even were the practitioner satisfied with his own powers of ophthalmoscopic examination, and the Widal reaction is far easier to make than a leucocyte count.

The amount of dilution and the time limit within which the positive or negative character of the reaction may be assured, are best treated of together; for within certain limits the greater the dilution the longer must be the time allowed. To illustrate: A dilution of 1 to 10 should give a reaction within fifteen minutes; in other words, if with a mixture of one part serum and ten parts culture, agglutination takes place within fifteen minutes, we are justified in feeling that we have a positive reaction. Similarly, a 1 to 40 dilution allows a time limit of one hour. Probably the 1 to 20 dilution with a time limit of half an hour is most generally in use and is very satisfactory. Having once chosen a dilution and technic, it is most wise to cling to it.

In addition to the many cases of typhoid collected by CABOT, he has also collected an almost equal number of instances of other diseases, in which the reaction had been tried for purposes of control. Out of this number, 5668, but 5 per cent. gave the reaction. Even this percentage will be somewhat lowered when we remember that the agglutinative power of the serum of a patient once afflicted may remain in the blood of that patient, according to some observers, for years after the original attack. It is not improbable to suppose that out of this large number of cases quite a considerable number may have previously suffered from typhoid. To sum up the points already mentioned: The large number of typhoid and control cases collected; the gathering of statistics from so many and such varied sources; the varieties of method and technic used; the positive reaction occurring in so large a percentage of genuine typhoid cases; the negative character of the reaction in so large a percentage in cases not typhoid, all tend to place the reaction upon a most firm foundation, and certainly afford us one of our most reliable points in the diagnosis of typhoid fever.

There is yet another discovery that must be placed to the credit of the Widal reaction, and that is the unity of so-called "mountain fever," accounts of which have been present for years in our text-books, with typhoid. This discovery is due to the faithful work of Dr. C. E. WOODRUFF, who found, in an epidemic of "mountain fever," that all the cases of this

disease in which the test was tried gave positive reactions, with but one exception.

During the late war with Spain we were all greatly exercised over the havoc made among our soldiers by the more or less tropic diseases, dysentery, pernicious malaria and yellow fever. The experiences of CABOT himself in Cuba and Porto Rico are of the greatest value in clearing up some of the obscurities of diagnosis undoubtedly existing at these points. At the general hospital at Ponce he found over two hundred sick soldiers indiscriminately dosed with quinin. In about 90 per cent. of those tested, the Widal reaction was quickly and unmistakably demonstrable, and the prompt restriction in diet that followed undoubtedly saved many lives. In Cuba, on the other hand, the malarial fevers proved to be more prevalent than typhoid, and again are we indebted to systematic and scientific blood work for this knowledge. In a tropic country where yellow fever is rampant, cases of typhoid fever with jaundice might be easily mistaken for the former disease. Out of four suspected cases of yellow fever at Ponce, CABOT was able to get positive typhoid reactions in three. From these points one can readily conceive that the reaction will eventually be even more in demand in tropic than in the more temperate zones. It is not strange that in the summary of the discussion of this reaction, the committee of the Section on Medicine of the AMERICAN MEDICAL ASSOCIATION should say, "it must certainly be regarded as the most constant and reliable sign of typhoid fever, if not an absolute test."

TOXIC ACTION OF PARASITIC WORMS.

G. H. F. NUTTALL (*Am. Nat.*, March) discusses the subject of the poisons given out by parasitic worms in man and animals. He refers to PIPER of Griefswald, who has recently been gathering up scattered facts, and decides that these creatures do actually secrete poisons in the organs, a more serious fact than would be otherwise the case. The convulsions of children with ascarides are mentioned as evidence, and he quotes MERAM and VON LINSTOW, who reported having personally experienced marked symptoms (conjunctivitis, swelling of fingers, etc.) from handling them, and RAILLET, ARTHUS and CHANSON, who had similar experience. The latter experimenters found that 2 c.c. of fluid from an ascaris would kill a rabbit. Tapeworm also has a bad effect sometimes; epilepsy has been known to disappear on its expulsion. It is also remarked as a curious fact that so many of its harborers suffer with their eyes. GRASSI noticed, in five out of fourteen cases with the species *Tenia nana*, serious symptoms resembling epilepsy. Bothriocephalus has been known to cause severe anemia; the anchylostoma is credited with being toxic by LUSSANA, and this has been recently confirmed by experiments on dogs, by LOOSS of Cairo. Finally, the hydatid cyst fluid has been shown by DEBOVE and HUMPHREY to be toxic to man and animals, and this may explain the occasional serious results of its rupture, and trichinæ may also probably be included in the poisonous parasites. The paper is suggestive, and the idea may be of value as affording a hint for future study of cases that come under observation.

DENTAL DISPENSARIES.

A new movement that has been inaugurated in Chicago is perhaps worthy of a passing comment. Dispensary physicians are familiar with the fact that a very large proportion of those who depend on these institutions for medical treatment are in bad shape as regards their dental apparatus, and that this is true of the young as well as the older dispensary patrons. Dr. CARL T. GRAMM (*Dental Review*, February) has called attention to these facts and made the proposition to establish dental dispensaries in the poorer districts of the city, where the class who at present are totally neglected from a dental point of view can be treated. Largely through his exertions the proposition has been carried into effect, and one or more of these dispensaries are already in operation. It is needless to say that the amount of good that can be done by a systematized effort in this direction is almost beyond calculation, and as it covers a class that at present pay no attention whatever to dental hygiene, it can not seriously injure the practice of the dental profession, certainly not if carried out according to the plan laid down by Dr. GRAMM. Recognizing the abuses in the medical dispensaries, he proposes to guard against them and to charge at least nominal fees and utilize all the aid of the Bureau of Associated Charities in distinguishing the worthy from the unworthy. Some impostors will be served, but the advantages from educating the poorer classes to care for their teeth will more than offset any loss the dental profession may suffer through them; and as Dr. GRAMM says, the medical profession owes and performs its duty to the poor, and the dental profession should also do its duty within the bounds of its special sphere.

BICYCLE RIDING AS A CURATIVE FACTOR IN DIABETES.

BOUCHARDT, TROUSSEAU, KÜLTZ, FRERICHS, ZIMMER, STOKVIS and v. MERING have warmly recommended bodily exercise in all forms of diabetes. They have drawn their conclusions from observation and experience. PENTZOLDT and v. NOORDEN were the first to report a series of carefully conducted experiments upon diabetic patients with reference to the influence of muscular work upon the quantity of sugar in the urine. They have established the fact that not only is bodily exercise not detrimental to the patients, but, on the contrary, they markedly improve in health, and that the quantity of sugar in the urine steadily diminishes, and, what is of the greatest importance, such patients tolerate a carbohydrate diet. This led Dr. ALB. ALLEN to undertake the study of the influence of bicycle riding upon the quantity of sugar voided. His results (*Berlin Klin. Woch.*, Nos. 11 and 12,

1899) have demonstrated that not only is a carbohydrate diet tolerated by patients riding the bicycle daily for an hour or two, and that the quantity of sugar in the urine is decreased to a minimum, but that the improvement is due solely to the carbohydrate diet. Repeated experiments upon a patient kept on an exclusive proteid diet showed an increase of sugar after bicycle riding. His observations are in accord with the latest teachings of physiology. Proteids are "tissue builders," and carbohydrates are "force producers." The blood flowing to a muscle at work is richer in carbohydrates than the blood flowing away from it. Glycogen is the carbohydrate of the muscle, and during work is converted into sugar, $C_6H_{12}O_6$, which in its turn is broken up into carbonic acid and water. It has been further demonstrated that the sugar circulating in the blood is destroyed when the muscle is at work. It is, therefore, evident that the more the muscle works, the more carbohydrate is used up, and consequently the more sugar is destroyed.

CREMATION IN ENGLAND.

The twenty-fifth annual meeting of the English Cremation Society has just been held, and its distinguished president, Sir HENRY THOMPSON, gave an interesting sketch of its history, which is that of the cremation movement in England. Whether we entirely sympathize with the crusade against that "relic of barbarism, earth burial," or not, our uppermost feeling in reading this record can only be one of astonishment. One would certainly have thought that cremation, whether esthetically or economically desirable or not, was certainly rational and unobjectionable enough to be well within the private liberty of individual choice, but bumbledom thinks far otherwise. And, unfortunately, what bumbledom says on this subject, "goes" without appeal. The society spent two years in finding a cemetery which was willing to permit bodies to be cremated upon its premises at the society's expense. A furnace was built and all arrangements completed, when the bishop of the diocese unfortunately forbade it at once, as "sacrilege." After another year's delay the society bought ground of its own at Woking, the great suburban "city of the majority" in London, and erected a complete plant, but the bishops, while they had no direct jurisdiction, then appealed to the Home Secretary, who sent down a notice to the effect that in the opinion of the circumlocution office, cremation was so expeditious a process as to be illegal; and under this embargo the beautiful buildings lay idle for nine years, until, in 1884, a private individual had the audacity to defy the Home Office and cremate the body of a relative, who had left strict instructions to that effect—and a snug fortune conditional thereupon. The rite was carried out privately, in a furnace built for the purpose, upon the estate of the legatee; he was prosecuted at once, but as soon as the question was fairly stated before an unprejudiced authority the suit collapsed and the judge declared cremation to be perfectly legal, providing it was carried out in such a manner as to give rise to no offensive fumes or any other technic "nuisance" to the public. Upon the strength of this ruling the society in 1885 cremated its first body at Woking; two others followed the same year, five the year following, and so on, steadily increasing every year until, in 1898, 240 bodies were incinerated, making a total of 1283 in the fourteen years.

ACTION OF STREPTOCOCCI AND THEIR TOXINS UPON NERVES AND SPINAL CORD.

HOMÉN and LAITINEN[1] injected virulent streptococci as well as their toxins into peripheral nerves and other parts of the nervous system, and carefully studied the resulting changes. They found that the first action of the bacteria and their toxins is a local one at the site of injection, consisting in a granular disintegration of the nerve-fibers, together with leucocytic emigration, and proliferation of the cells in the nerve-sheaths and the endoneurium. This process then progresses from the periphery toward the center, the bacteria being generally found at the border of the changed and relatively intact parts. When they are injected into the sciatic nerve, for instance, they sooner or later reach the spinal ganglia, where there is produced disintegration of the ganglionic cells or solution of their chromatophilic elements. At the same time there is a round-cell infiltration into the subdural sheaths and into the nerve-roots. In the spinal cord changes are also produced by the cocci, which extend to the cord from the nerves, and spread throughout the cord in about the same way as when they were injected directly into its substance. The same is also true as regards the toxins. The changes in the cord, first of a degenerative nature, soon assume the aspect of inflammatory and sclerotic processes. In one case there developed, after the injection of a small quantity of bacteria, a localized abscess in the lumbar part of the cord. The slight differences between the histologic changes and their extent after the injection of bacteria and of toxins indicate that the principal changes as well as their localization are all the same in both cases, and that the bacteria act principally through their toxins. These investigations offer a certain amount of evidence in favor of the view that many processes in the spinal cord, both those of degenerative as well as those of inflammatory nature, are of infectious or toxic origin. The experiments furnish an anatomic basis for the theory of ascending neuritis.

NERVE TRANSPLANTATION.

An interesting article in the *American Journal of the Medical Sciences*, already noticed in the JOURNAL (p. 780) reviews in a very thorough manner the subject of nerve transplantation, an operation often experimentally performed, but one that, as Dr. PETERSON shows, has had as yet but a limited utilization in the human subject. While other methods, such as the LETIEVANT flap or the insertion of catgut, may suffice in most cases where direct approximation is impracticable, there will be cases where, with proper facilities,

[1] Die Wirkung der Streptokokken und ihrer toxine auf verschiedene Organe des Körpers, Zeigler's Beitrage, 1899, Bd. 25.

nerve transplantation will be an advisable operation, and the microscopic examination of HUBER tends to show that actual nerve tissue furnishes a better route for the downgrowth of new axis-cylinders than any other foreign material. Nerve-flaps involve mutilation of healthy nerve and might, in case of very extensive removal of nerve-fiber, require dissection that would possibly have some inconvenience or danger. It is true that in the tabulated cases given by Dr. PETERSON the success with very long implantations was poor, but the number of cases is yet too slight to justify any unfavorable conclusion as to the future possibilities with improved technic and experience. It is to be noted also in this connection that the case in which the most favorable results, almost a perfect cure, occurred, was that of MAYO ROBSON, where two inches of nerve were transplanted. In his earlier case, successful as far as regards restoration of sensation, some two and a half inches were resected. The old idea, still held by KENNEDY, of direct reunion of the nerve or that of upward as well as downward growth of nerve-fibers, finds no support in these latest researches. The transplanted nerve simply serves as a convenient route for the regeneration from the central to the peripheral portion of the divided nerve, and the same purpose is served to a certain extent by the catgut bridge. It is not, however, altogether unreasonable to suppose that an identic tissue would have some advantage and might actually serve a purpose in the earlier restoration of function. The subject is one that has yet to be more studied before we can consider its surgical importance or even its physiologic bearings to be completely established. Dr. PETERSON'S article, besides being itself a valuable original contribution, adding to our knowledge of the subject, has the merit of presenting a very complete summary of the facts, so far as known, from all available sources.

CANCER OF THE BREAST.

W. WATSON CHEYNE publishes, in the *Lancet* of March 18, a very important paper which possesses a special interest in view of the theories of the infectious nature of cancer that are just now so prominently before the profession. It is also important as showing the effect of measures based on the conviction of the infectiousness of the disease in modifying the prognosis, that is, thorough excision well into the healthy tissue and careful avoidance of any possible contamination of the latter by instruments or diseased tissue. His paper gives first the latest facts in regard to the patients reported by him three years ago (*Lancet*, Feb. 15 and 22, and March 14, 1896) as operated upon for cancer of the breast. These numbered 61, and 21 had had no recurrence for three years after operation, though it occurred later in nine. There were therefore 12 of the 21 remaining, who had been well over three years, and, at the present date, 11 of them are still well, six to nine years after operation, while one is reported as having died of intestinal cancer. Of the 40 who, at the date of his former paper, had been operated upon less than three years, ten were already showing signs of fresh recurrences, one had died and two had been lost sight of. Of the remaining 27, 18 are still alive and well (three to five years after operation), and one died without recurrence of the growth. One could not be traced. The three-years limit would seem to be a fair one as regards recovery, since of the original 11, only one died of cancer and it is doubtful whether that had any connection with the earlier disease. Even after one year, the chances of recurrence are not great. CHEYNE next gives a tabulated statement of 38 additional cases operated on in 1896-97, and attributes success to thoroughness of excision and avoidance of all possible contamination of healthy tissue with the cancerous growth, free removal of the skin being especially important. The deep fascia and all diseased glands in the axilla are also to be thoroughly excised. He does not quite agree with HALSTED, that operation is advisable when the cervical glands are also generally infected. If only those in the posterior portion of the posterior triangle are involved, he would operate, provided the patient was in proper condition, but if they are enlarged at the base of the neck in front of or beneath the sternomastoid, he does not advise submitting the patient to such a radical operation. He estimates: 1, that in the average run of cases 50 per cent. of the patients will remain well if the operation is carried out on the lines laid down by HEIDENHAIN and STILES; 2, that recurrence is delayed when it does occur and the repeated operations formerly in vogue are rendered less necessary. The patient's chance is in the first operation; if this fail, a repetition is rarely successful. Hence the importance of thoroughness the first time.

A QUESTION OF PRIORITY.

American medical literature, especially that in the periodic form is, we regret to say, largely a neglected quantity by European investigators. We would not pretend to specify any nationality as particularly guilty in this respect but for the fact that now and then a slighting reference has left an unpleasant recollection, and—we say it with all good feeling—some German writers are the ones that have offended most. Such remarks as that made by a German professor, that medical science in America is only just out of its "kinderschule," are not pleasant and are indeed the more annoying as we desire to have due respect for German thoroughness and industry and the great service it has done to science. The fact that it is not true and was uttered only to account for German neglect of an important fact first noted in this country, does not entirely relieve it of its sting. Superciliousness on one side is apt to lead to reprisals in kind, and the truth that science should have no boundaries is apt to be ignored. These remarks are suggested partly by a recent New York letter in the *Deutsche Med. Woch.* of March 23 and partly by a rather noticeable oversight on the part of a German author that has lately been called to our notice. In the *Neurologisches Centralblatt*, No. 4, February 15, Dr. A. WESTPHAL publishes an article entitled "Ueber ein

bisher nicht beschreibenenes Pupillenphænomenon (a hitherto undescribed pupilary phenomenon). It consists in the fact that a contraction of the pupil takes place after a forcible effort to close the lids is made. The subject, with eyelids held apart by the observer, is told to shut the eyes tightly, when the pupils will be noticed to contract perceptibly. If Dr. WESTPHAL had consulted ophthalmologic literature, he might have found in KNAPP and SCHWEIGGER'S *Archives of Ophthal.*, 1895, xxiv., p. 402, his pupil reaction already fully described and discussed by Dr. H. GIFFORD, of Omaha, under the title of "An Orbicularis Pupilary Reaction." Dr. GIFFORD leaves little to be asked in regard to the phenomenon, in its ophthalmologic aspects in the light of our present knowledge, and it is the more remarkable that so thorough and scholarly a paper should have been overlooked. Are we to account for it by assuming that it was not considered worth while to investigate anything of American origin even though published under German auspices? However it may have occurred, it is well to show that priority in the observation belongs to Dr. GIFFORD and to suggest that other instances of this kind will be likely to occur in case American literature is neglected by foreign investigators in the future as it has been in the past. That such omissions have been more frequent than they should be is sufficiently shown by the fact that this is the second correction of the kind in the JOURNAL during the present year (see communication of Dr. CARL BECK in the issue of February 4). There is certainly room for improvement in German literary research as regards American publications.

HUMANE OR INHUMANE PROJECTILES IN WAR.

The criticisms of the English Dum-Dum bullet and the MARK IV or Woolwich military bullet, especially those of Professor VON BRUNS of Tubingen, have stirred up some feeling and naturally have called out some replies. The *British Medical Journal* of March 25 contains the latest of these, a total of over five pages of critic review of the whole subject by Mr. ALEXANDER OGSTON. He gives the history of the British soft-point bullet and the reason for its adoption and the later substitution of the Woolwich hollow-pointed projectile, and calls attention to the fact that the success against the fanatic dervishes at Omdurman was probably due to the greater disabling effect of these weapons, while, had the full-mantled bullet been employed, disaster instead of victory might have been the outcome. He then quotes quite fully the criticisms of Professors VON BRUNS and ESMARCH and those of the French critics, and also quotes at length from an anonymous French writer whose views and experiments seem, like those of BEYER in this country, to throw doubt on the lesser destructive action of the fully mantled projectile, thus, by implication at least, lessening the blame attached to the soft or hollow-pointed bullets. Dr. OGSTON makes a very good point when he says that the original purpose of the mantle or steel coating of the modern military projectile was not humanity, but simply to compensate for its increased velocity by preventing stripping in the rifle grooves. The idea of increasing the velocity, in fact, was to make the weapon more destructive by enabling it to carry farther and penetrate better; to, in short, increase its range of effectiveness in every way, and the hard mantle is simply a necessary condition of this increased velocity. Under certain conditions the modern steel-cased bullet inflicts what can hardly be called a humane wound, and is itself open to objections on this score. Another point worthy of consideration is the difference between warfare with civilized and uncivilized peoples. It is one thing to have to do with a civilized enemy and another with one that gives no quarter, especially if the latter is made up of fanatics whose rushes can not be stopped by anything but disabling wounds or death. It would be unfair to insist on the same rules in dealing with these as with civilized troops who are under the regulations, so far as they exist, of civilized warfare. If the subject is to be made a matter of international regulation, it will be found not a perfectly simple one, and no rule can be made effective in any war that does not equally bind both combatants. Any international convention to settle this matter will have to consider not only the metallic mantle, but also its composition, quality and thickness, especially at the point, and also the question of high velocities in general, and beyond these details, the broader subject of the conditions of warfare with the uncivilized and those who are not bound by the conventions. The humanizing of warfare, which is itself essentially inhuman, will be a complicated and difficult task.

THE CEREBROSPINAL FLUID.

An interesting triple communication was presented at the meeting of the Royal Society (England) on February 16, and reported in *Nature* (March 9). Dr. St. CLAIR THOMSON gave an account of a patient of his, who, without any history of injury, had a continuous discharge (dripping) of cerebrospinal fluid from one nostril. Other cases are on record that Dr. THOMSON thinks must have been similar, though the true nature of the discharge was not recognized. Some of these died from inflammatory disease of the brain, probably from infection by way of the nostril. The fluid was clear and watery, of low specific gravity, containing only a small amount of proteids. The presence of a substance, not dextrose, reducing Fehling's solution, was detected and it is supposed to be possibly related to pyrocatechin. There was a strong contrast between this fluid and the ordinary mucin-containing discharge of ordinary nasal hydrorrhea. It was found to be more watery in the evening than in the morning on account of the lesser quantity of organic solids. This agrees with results of experiments on dogs by CAVAZZANI, and is what might be expected, as the decreased capillary pressure assumed to exist during rest would lessen the watery exudations

Dr. LEONARD HILL had utilized this case to confirm a theory he had advanced that the rate of secretion of the cerebrospinal fluid when the cranio-vertebral cavity is opened depends directly upon the

difference between the atmospheric pressure and that in the cerebral capillaries, while the cerebral capillary pressure varies directly and absolutely with the vena cava pressure. On the other hand, cerebral capillary pressure varies directly, but only proportionately with aortic pressure, as between the aortic and the capillaries is the peripheral resistance. Experimenting with Dr. THOMSON'S case, HILL found that capillary pressure was raised by several methods, all likewise acting in increasing vena cava pressure: 1, by compression of the abdomen; 2, by the horizontal posture (the normal fall of arterial pressure may compensate for this, and undoubtedly does so during sleep); 3, by straining, or expiratory movements with the glottis closed. All these caused increased flow with diminution of solid matter in the fluid. Dr. W. D. HALLIBURTON, the third collaborator in the investigation, experimented with the cerebrospinal fluid from patients suffering from brain atrophy, and especially from paretics. He found that it contains a toxic substance, cholin, probably produced by disintegration of lecithin in the brain. Injection of such fluid into the jugular vein of anesthetized animals caused marked lowering of the blood-pressure, partly of cardiac origin, but principally due to the action of the poison on the neuromuscular apparatus of the peripheral vessels, especially in the splanchnic area. Control experiments with the cerebrospinal fluid from Dr. THOMSON'S case gave altogether negative results, though as much as 7 to 10 c.c. were injected, a dose sufficient to produce very marked effects of the cholin-containing fluid.

Medical News.

THE SUM of $100,000 has been appropriated by the New York Legislature, for the Craig colony of epileptics.

THE COMMENCEMENT exercises of the medical department of Tulane University of Louisiana will take place May 3.

DR. J. B. BONNEY has been selected by the Louisiana State Board of Health to take charge of the Rigolets Quarantine Station.

DR. C. A. L. REED, Cincinnati, Ohio, has resigned his office as a member of the Ohio State Board of Medical Examination and Registration.

DR. FRANKLIN STAHL, class of '87, has been elected by the trustees of the University of Pennsylvania to lecture in the medical department, on dietetics.

THE CASUALTIES in the Philippine Islands from Feb. 4 to April 4, 1899, as reported by the adjutant-general of the army, amount to 1160: killed, 184; wounded, 976.

DR. JOS. CLEMENT CLARK, first assistant at Springgrove Asylum, Md., has been appointed successor to the late Dr. Rohé, as superintendent of State Insane Asylum No. 2.

DR. HERMANN SNELLEN, professor of ophthalmology at the University of Utrecht, will at the end of this semester resign his chair. Heinrich Snellen, his son, will succeed him.

PROF. LEOPOLD of Dresden, was elected honorary president by the Spanish Gynecological Society of Madrid, and made honorary member of the Italian Obstetrical and Gynecological Society.

BY THE will of the late Dr. Sigismund Waterman, just admitted to probate, his medical library is bequeathed to Yale University, from which institution Dr. Waterman received his degree of M.D.

IN ORDER to stimulate a better display of surgical instruments and apparatus in the State Fair, to be held in New Orleans, La., in May, the Orleans Parish Medical Society will give a gold medal for the best exhibit.

THE BOARD of Trustees of Cooper Hospital, Camden, N. J., has appointed Dr. E. A. T. Schellinger assistant physician and surgeon on the hospital staff. Dr. S. formerly acted as resident physician to the hospital.

THERE IS a movement on foot in Russia to establish sanatoria for consumptives, in the numerous monasteries, the majority of which are situated in healthy regions, have spacious rooms and are able to supply fresh milk, eggs, etc.

THE BUBONIC plague recently appeared at the village in Annam where Yersin's plague serum laboratory is located, and was at first supposed to be another case of laboratory contagion, but later investigations traced it to a village on the coast where the Chinese junks land.

FIFTY-ONE men from the second division hospital corps, stationed at Greenville, S. C., have been ordered to general hospital work in the Philippines. The War Department has also ordered twenty-five men from the hospital corps of Ft. Leavenworth, Kan., to proceed to Manila.

DR. J. CHALMERS DACOSTA, surgeon of the firemens' pension fund, Philadelphia, has been presented with a handsome gold badge on behalf of the members of several fire companies of that city. In design the badge is similar to that presented to Miss Gould by the New York fire department.

ACCORDING to the *Medical Review*, the Missouri Medical College and the St. Louis Medical College are proposing to amalgamate. The union of these two oldest schools in St. Louis ought to result in good for the profession in our sister city, if such union can be accomplished, as now seems quite probable.

THE FIRST international congress of physicians connected with life insurance companies will be held at Brussels, Belgium, Sept. 25 to 30, 1899. Europe and the United States will be represented at this congress, which proposes to establish universal formulæ for the examination of persons desiring to be insured.

THE DISTRICT COMMISSIONERS have, in accordance with the law in regard to contagious disease, enlarged the powers of the health officer of the District of Columbia, enabling him to have full control as regards inspection and cleaning whatever premises are the source of danger, without regard to actual present infection.

YELLOW-FEVER experts have been appointed by the Louisiana State Board of Health, as follows: Drs. T. S. Kennedy, E. S. Lewis, F. Loeber, R. Matas, F. W. Parkham and L. F. Salmon—a board of experts on yellow fever to whom cases are to be referred for

diagnosis in the unlikely event of the recurrence of that disease.

FROM the press dispatches from Springfield, Ill., a member of the legislature recently introduced a bill to compel physicians to attend all sick persons when called, whether fees are guaranteed or not, with a penalty of $50 for the first refusal and $100 for subsequent refusal.

JOSEPH A. STEINMETZ, a member of the executive committee of the Red Cross Society of Philadelphia, together with several employes, has gone to Havana to formulate plans for the establishment of a childrens' hospital to accommodate 150 patients. The hospital will be under the control of the National Red Cross Society.

THE FORMAL opening of the new buildings of the German Hospital, Philadelphia, and their presentation to the trustees of that institution, occurred on April 5. The buildings were given to the institution by Mr. John D. Lankenau and included the middle building of the hospital, laundry, hydropathic institute, and mortuary.

IT HAS been determined by the New York County Medical Association, to revive the old "Medical Register of New York, New Jersey and Connecticut," which for many years was published annually under the auspices of the New York Medico-Historical Society, but which has of late been discontinued for lack of adequate patronage.

STUDENTS of the Jefferson Medical College, Philadelphia, Pa., have started a magazine, to be known as the *Jeffersonian*, the first number appearing April 10. The editors are anxious to obtain the addresses of all Jefferson alumni, and graduates of the school are requested to send their addresses to the editors of the *Jeffersonian*, care of the Jefferson Medical College.

RECENTLY, representatives from the University of Pennsylvania visited Sea Isle City for the purpose of determining the best available position for the establishment of the laboratory of the biologic and botanic department of the university. It is proposed to erect the building in some region where it may remain open for instruction throughout the entire year.

A REGULATION against spitting in public buildings, churches, theaters, markets, railway stations, and cars, has been made by the Boston Board of Health. It is hoped that the courts will not nullify this, as has been done elsewhere with a similar regulation in at least one of our large cities. The "spitting boy," as the public expectorator seems to be called in the Boston papers, certainly ought to be restricted.

SALT LAKE CITY is said by the local papers to be in a deplorable sanitary condition and a general cleaning imperative. The *rus in urbe* plan of the Mormon founders of the city, it would seem, ought to somewhat embarrass the sanitarium as population becomes dense and the ten-acre blocks become more closely built upon. The prophet's prophetic powers were not fully applied in his sanitary conception of the City of the Saints.

DR. WILLIAM PEPPER has presented to the University of Pennsylvania library, a collection of 500 medical books from the library of his father, the late Dr. William Pepper. The collection contains works of reference, treatises on special subjects and transactions of medical societies. Through Dr. James Tyson, a gift has also been made to the library, by H. Vail, consisting of climatologic observations taken at Santa Barbara, Cal., from 1888 to 1898, inclusive.

A COMMITTEE from the University of Pennsylvania, consisting of Prof. Hermon V. Hilprecht, Dr. Stewart Culin and Mrs. Cornelius Stevenson, has been appointed to arrange for a representation of the University of Pennsylvania at the Paris Exposition in 1900. This committee will work in conjunction with those of Harvard, Yale and other American representatives. The University of Pennsylvania will prepare the exhibition on anthropologic and ethnologic specimens.

ACCORDING to press despatches from Washington, D. C., the president has signed an order transferring to the surgeon-general of the marine-hospital service about 10,000 acres, with the present buildings, at the old Fort Stanton military reservation in Lincoln County, N. M., fifty miles east of Laguna station on the Santa Fé railroad, for the establishment of a hospital for consumptives in the army, navy, or marine corps, revenue marine and other branches of the service.

ACCORDING to Cornet (*Bul. Klin. Wochenschr.*) the mortality from tuberculosis has declined in Prussia from between 30.8 and 32.5 per 10,000, with an average of 31.4, to 21.5 in 1897. In other words, about 184,000 fewer persons have died from tuberculosis in Prussia between the years 1889 and 1897 than in the preceding ten years. This result is attributed largely to the efforts made to prevent drying and careless and indiscriminate dissemination of the sputum of tuberculous subjects.

MORESTINE entitles a case he describes in *Wratsch* (No. 25, 1898), "Martyrology of a Patient." The adnexæ were removed from a young woman, in 1894, and during the years since she has returned to the hospital a number of times with a succession of phlegmons and fistulæ in thigh, abdomen and vagina. She at last returned in perfect health, bringing with her a hemostatic forceps 12 cm. in length, which had been spontaneously evacuated per anum after a sojourn of four years in her abdomen.

TO DEMONSTRATE what might be done toward developing the latent faculties of the insane, Dr. Daniel E. Hughes of Philadelphia gave a program on Easter in which inmates of the insane department of the Philadelphia Hospital took the leading part in the rendition of sacred music. The total number of patients who led and were under control was 800. The hymns were of difficult performance, but under the careful training given, the program was completed with much satisfaction to all present.

DR. C. P. WILKINSON, State quarantine officer of Louisiana, has just completed a tour of inspection of the seaboard quarantines, a mission on which he was sent by the State board of health, with a view to obtaining uniform quarantine regulations and thus minimizing the danger of importation of yellow fever from Cuba. Dr. Wilkinson made a favorable report, particularly on his conferences with the marine-hospital and New York health officials, who promised to co-operate with the board of health in maintaining an efficient quarantine.

AT THE meeting of the board of trustees of the Cincinnati Hospital, April 5, Dr. Charles E. Caldwell was elected orthopedic surgeon in place of Dr. Charles Castle, resigned. The board elected Dr. Nat Graham of the Ohio Medical College to fill the place of interne made vacant by the continued sojourn of Dr. Morrison in the Philippines. Dr. Morrison is acting as surgeon to a Montana regiment. Dr. C. S. Evans, dermatologist to the Cincinnati Hospital, was granted leave of absence for the summer. Dr. Evans will spend the summer in Europe.

A DRESDEN gynecologist, Dr. Ihle, has recently operated on a young woman, intending merely to curette for endometritis, but found, after narcosis, such extensive lesions in the ovaries that he removed them and postponed the curettement. The patient expressed her gratitude for his prompt action in deciding and operating without waiting her consent, but when he presented his bill for 1540 marks, she changed her mind and refused to pay it. The courts decided that the operator deserved censure, as he should have waited and postponed his intervention until he had secured the patient's consent, as nothing indicated that the operation was urgent.

A PAMPHLET on the "Bertillon Classification of Causes of Death," has been sent out by the American Public Health Association, which asks for suggestions from sanitarians, pathologists and others, to be utilized in the first revision, which will be made in Paris next year. It is hoped that its adoption will be general, or rather, universal, so that with the next century there will be begun a universal system of mortality statistics throughout the world. Any physician desiring information or willing to offer suggestions can obtain a copy of the pamphlet gratis by applying to the secretary of the association, Dr. Cressy L. Wilbur, Lansing, Mich.

A COMMITTEE of over forty physicians, representing sixteen different medical societies of the city of New York, and including representatives of both medical schools, has been formed for the purpose of doing honor to the memory of Dr. Joseph O'Dwyer. The report of the committee on scope and plan has been adopted and now only awaits final action of a meeting of the full committee. The memorial will probably take an educational form, as the plan now outlined proposes to raise a fund of $30,000, the interest of which shall support two O'Dwyer Fellowships in Pediatrics, open to competition by physicians who graduate in the United States, and to be held by the successful competitors for a period of two years.

A QUAINT old book, the memoirs of Louise Bourgeois, the midwife who assisted at the birth of the children of "Henry of Navarre," about 1600, contains the first description of the treatment of placenta previa, as she describes her practice of interfering whenever the hemorrhage threatens a fatal termination, the uterus gaping without pains, from the relaxation of extreme weakness, "watching the woman as a cat watches a mouse, and fighting for her with eye and finger"—"breaking into the uterus as one would into a house on fire." She mentions a child "born without a seat," but healthy, the feces being discharged through the vagina. She advised against an operation, as she "was sure her friend the lamented Monsieur Paré would not have operated in this case," observing that ' women who seek to entice married men from the path of virtue were built this way, many wives would be happier than they are now."

THE RECENT graduating class from the College of Physicians and Surgeons, Kansas City, Kan., numbered eleven.—The annual commencement of the Atlanta (Ga.) College of Physicians and Surgeons was held April 2.—Seven received the degree of M.D. from Birmingham (Ala.) Medical College at the recent annual commencement.—Graduates of the Medical Department of the University of Tennessee, Nashville, recently, numbered fifty-five.—The ninth annual commencement of the Kansas Medical College, was held at Topeka, Kan., recently, with a class of twenty-four.—Fifty-five young men were graduated at the recent commencement of the University Medical College, Kansas City, Mo.—The first class under the four-years course, numbered nine, at the Medical College of Indiana, Indianapolis, at the twenty-ninth annual commencement.—The graduates from the Keokuk (Iowa) Medical College, at the recent commencement, numbered five. This institution recently acquired the College of Physicians and Surgeons of that city, said to be the oldest medical college west of the Mississippi.—The Fort Worth (Texas) College of Medicine graduated a class of twenty April 6.—The eighteenth annual commencement of the Baltimore (Md.) Medical College was held April 6.

Correspondence.

For Whose Benefit Do We Write?

CHICAGO, April 8, 1899.

To the Editor:—In your issue of to-day (vide JOURNAL, p. 777) a correspondent asks: "For whose benefit do we write?" The accompanying letter shows for whom we are sometimes asked to write.

CHARLOTTE, N. C., March 24, 1899.

Dr. E. F. WELLS, Chicago, Ill.

My Dear Doctor:—A medical friend of mine recently mentioned in a complimentary way an article you lately read before the Chicago Society of Internal Medicine, entitled "Pulmonary Tuberculosis."

I am desirous of securing a scientific clinical report on paper on the therapeutic use of ———. This preparation is, as you all know, ethic and scientific, and has been used extensively in phthisis. I would like an article of about a thousand words, and am willing to pay you for your careful observation and report. Of course I want the privilege of publishing the paper in the medical press. If you have the time and inclination to do this work for me, and need literature and samples, I will take pleasure in sending them to you. Thanking you in advance for an early reply, I am, very truly yours, ———.

Sincerely,

EDWARD F. WELLS, M.D.

Consolidation of Medical Societies.

MILTON, Ky., April 4, 1899.

To the Editor:—Your plea for consolidation of medical societies (vide JOURNAL, p. 717) is timely and good. I trust that a movement looking to this end will be started at our next meeting, and would suggest that State societies have semi-annual meetings instead of annual as at present; also that the village doctor be put on active duty. Yours truly,

S. E. HAMPTON, M.D.

THE sale of liquor at Stockholm has fallen from over four millions liters a year to a little over a million and a half, since the introduction of the Gothenburg system.

Current Medical Literature.

AMERICAN.

Titles marked with an asterisk (*) are noted below.

New York Medical Journal, April 8.

1. *Errors I have made in 228 Consecutive Cases Diagnosticated as Appendicitis. Robert T. Morris.
2. *Signs of Inherited Syphilis. Robert H. M. Dawbarn.
3. *Differential Diagnosis of Syphilitic Eruptions and Signs in the Skin of Former Syphilis. George Henry Fox.
4. *Treatment of Secondary Syphilis. R. W. Taylor.
5. *Treatment of Syphilis. L. Bolton Bangs.
6. *Further Report on the Use of "Antiphthisic Serum, T. R." (Fisch), in Tuberculosis. A. Mansfield Holmes.
7. Thoracoplasty for Sarcoma of the Chest Wall. Frank Hartley.
8. Study of Presentations and Positions of the Fetus. Eliza H. Root.

Boston Medical and Surgical Journal, April 6.

9. *Classification of Epileptics. W. N. Bullard.
10. *Justus' Test for the Diagnosis of Syphilis. Richard C. Cabot and P. S. Mertins.
11. Starch Digestion in the Stomach. A. E. Austin.

Maryland Medical Journal, April 8.

12. *Antiperiodic Treatment of Insanity. Edward Anderson.
13. Technic of Radiography. Alex. L. Hodgdon.
14. Report of Progress in Dermatology. T. Caspar Gilchrist.
15. Report of Progress in Diseases of Eye and Ear. Hiram Woods.

Philadelphia Medical Journal, April 8.

16. *Clinical and Scientific Contributions upon the Value of the Widal Reaction, Based upon the Study of 230 Cases. James M. Anders, and James McFarland.
17. *Two Unusual Cases of Myxedema. Sidney Kuh.
18. Clinical Study of 287 Cases of Hyperphoria. Wm. Campbell Posey.
19. Typhoid Fever and Water-Borne Diarrhea. John S. Fulton and William R. Stokes.
20. Simple and Convenient Apparatus for the Home Modification of Milk. J. P. Crozer Griffith.
21. Note on Frequency of Enlargement of Epitrochlear Glands in Diseases Other than Syphilis. Richard C. Cabot.

Medical Record (N. Y.), April 8.

22. Importance of Ureteral Catheterization in Gynecology. Theodore Landau.
23. Term "Conservative Surgery" as it Has Been Proposed to Apply It to the Uterus and its Appendages. Lawson Tait.
24. Constipation—Its Treatment by Mechanic Measures. H. Illoway.
25. Infection of Gunshot Wound of Leg with Bacillus Aerogenes Capsulatus—Amputation—Recovery. W. J. Love. With Bacteriologic Report by G. A. Cary.

Medical News (N. Y.), April 8.

26. Stypticin (Cotarnin Hydrochlorate) in Uterine Hemorrhage. H. J. Boldt.
27. The Present Status of Pharmacy and its Possible Improvement. Eli H. Long.
28. *Some Observations upon Erysipelas and Its Treatment.—Based upon a New Series of 100 Cases. Charles W. Allen.

Cincinnati Lancet Clinic, April 8.

29. *Pityriasis Rubra Pilaris. A. Ravogli.

Medical Review (St. Louis), April 8.

30. *Results of Treatment in 1129 Cases of Acute Alcoholism. Death-rate 1.5 per cent. J. K. Bauduy.

Virginia Medical Semi-Monthly, March 24.

31. Surgical Diseases of Liver. L. S. Stone.
32. Typhoid Perforation Operation Recovery. Hugh M. Taylor.
33. *Chromology of Methods of Atmospheric Inflation for Inspection of Rectum and Sigmoid Flexure. Thos. Chas. Martin.
34. Anterior Poliomyelitis, or Infantile Paralysis. Chas A. Labenberg.

Columbus Medical Journal, March 21.

35. Acute Parenchymatous Nephritis. George Murray Waters.
36. Etiology and Pathology of Chronic Nephritis. J. J. H. Upham.
37. Treatment of Chronic Interstitial Nephritis. Edwin F. Wilson.

Pediatrics, April.

38. *Analysis of Forty Cases of Infantile Cerebral Palsy Associated with Epilepsy. L. Pierce Clark and E. A. Sharp.
39. Diagnosis of Some Common Eruptive Fevers. Frank W. Wright.
40. Uncomplicated Epidemic Influenza as it Affects Very Young Children. Charles O'Donovan.
41. *Note on Treatment of Pertussis. J. Madison Taylor.
42. Diseases of Children in Porto Rico. George G. Groff.
43. Case of Old Dislocation of Elbow-joint in a Child—Operation—Recovery. Charles Greene Cumston.

Annals of Surgery, April.

44. *Management of Acute Traumatic Pneumothorax. Rudolph Matas.
45. Cholecystitis; A Clinical Review of Twenty-one Cases. Lucius W. Hotchkiss.
46. *Modification in Operative Method for Inveterate and Relapsed Cases of Talipes Equinovarus. August Frederick Jonas.
47. *Contribution to Surgery of Empyema of Thorax in Children. John Rice Bogart.
48. *Surgical Treatment of Acute Infective Arthritis and Cellulitis (Acute Articular Rheumatism). John O'Connor.
49. Report of Case in which Halsted's Hammer was Used as an Aid to Suture of Common Bile-duct. J. J. Buchanan.

Yale Medical Journal, April.

50. *Acute Inflammation of Gall-Bladder. M. H Richardson.
51. Case of Acromegaly. O. T. Osborne.
52. Malarial Disease Mistaken for an Affection of the Ear. D. B. St. John Roosa.
53. Case of Pyopneumothorax Treated by Estlander's Operation. J. P. Kimball.
54. Sprains and their Treatment. C. A. Allen.

Medical Standard, April.

55. Therapeutics of Diseases of the Respiratory System. George F. Butler.
56. *Universal Torsion as a Hemostatic Compared with Ligature, Electricity and Acupressure. J. D. Justice.
57. Treatment of Typhoid Fever. Wm. E. Quine.

Brooklyn Medical Journal, April.

58. *Separation of Epiphysis of the Lower Extremity of Humerus; Report of Case in which Epiphysis was Displaced Forward. Russel S. Fowler.
59. *Some Unlooked-for Occurrences in Practice of Medicine. R. E. Coughlin.
60. *Kidney and Pregnancy. J. L. Kortright.

The Medical Fortnightly, April 1.

61. Tonsillitis of Influenza. Seth Scott Bishop.
62. Seasickness—A Personal Experience. Ernest B. Sangree.
63. Skepticism and Serum Therapy. H. Schoenfeld.

St. Paul Medical Journal, April.

64. *Explanation of Causes which have Led to Decrease of Leprosy in Norway. G. Armauer Hansen.
65. Thoughts on Expert Medical Testimony from Standpoint of Country Practitioner. A. Babcock.
66. *Wheat Jelly in Infant Feeding. L. Duncan Bulkley.

Memphis Lancet, April.

67. *Erysipelas. Augustus A. Eshner.
68. *Adenoid Vegetations. Carle Lee Felt.
69. *Tumors of Breast. Wm. L. Rodman.
70. *Color-Blindness in Railway Employes. Dudley S. Reynolds.
71. *Treatment of Urethral Stricture. E. A. Neely.

Memphis Medical Monthly, April.

72. Chronic Hypertrophy of Pharyngeal Tonsil (Adenoids) in Children. Richmond McKinney.
73. When to Asepticize in Midwifery. E. E. Haynes.
74. *Remarks upon Treatment of Hernia, Strangulated and Reducible. F. D. Smythe.
75. Abscess of Spleen—Report of Two Cases. B. S. Haliburton.
76. *Uses of Marsden's Paste in Epithelioma. Robert W. Tate.
77. Stop Generating Disease. Adele E. Shaw.

Texas Medical News, March.

78. Placenta Previa, with Report of a Case. Matthew M. Smith.
79. Acute Enterocolitis of Children. W. E. Holtzclaw.
80. Diagnosis of Smallpox. Frank W. Wright.

Kansas City Medical Record, March.

81. Creosote in Phthisis Pulmonalis. L. H. Warner.
82. Importance of More Thorough Teaching of the Principles of Food and Dieteties in our Medical Colleges. J. W. Kyger.

American Practitioner and News, March 15.

83. Analysis of Earliest Manifestations of Tuberculosis. F. C. Wilson.
84. Traumatic Neurosis. T. B. Greenley.
85. Varicocele. Oscar E. Bloch.

Kansas City Medical Index, March.

86. *Treatment of Migraine. Joseph Collins.
87. Disposal of the Dead, from a Bacteriologic Standpoint. I. J. Wolf.
88. Cases from Practice; Fibroadenoma, etc. D. L. Eastman.
89. Fracture of Patella; Gunshot Wound; Hernia; Sarcoma of the Cheek; Hip-Joint Disease. Charles McBurney.
90. Nostalgia. David R. Porter.
91. Case of Torticollis and its Latest Treatment. S. Grover Burnett.

Southwestern Medical Record, March.

92. *Pernicious Malarial Fever. W. P. Gilstrap.
93. Gunshot Wounds. Sofie Herzog.

Canadian Practitioner and Review, April.

94. The Soldier and the Surgeon. J. Sterling Ryerson.

Medical Dial (Minneapolis, Minn.), April.

95. Paranoia—Notes from a Lecture before the Senior Class of Hamline University. C. K. Bartlett.
96. Uterine Displacements. A. E. Benjamin.
97. Value of Urinary Analyses. Robert A. Campbell.

Indiana Medical Journal, April.

98. Investigation of Digestive Activity of the Stomach. Alois B. Graham.
99. Triplets—One Single Child and a Thoracogastrodidymus. G. W. Thompson.

Sanatarian, April.

100. *Sand Filtration of Public Water-Supplies. R. S. Lea.

1. Diagnosis of Appendicitis.—Morris discusses the question of the diagnosis of appendicitis in 228 cases of consecutive operation for this trouble. He found only seven clear errors in his diagnosis of the disorder and asks what other disease gives so small an opportunity to go wrong. It seems to him that appendicitis is one of the most readily diagnosticated of all diseases.

2. Inherited Syphilis. Dawbarn's article is an enumeration of the signs of inherited syphilis, twenty seven in number. Many of these are the characteristic lesions of the disease and condition of the patient. Others are, like Hutchinson's teeth, snuffles, claw nails, etc., well known as symptoms. A few others are of value in combination with other signs. None of these are here mentioned for the first time, but one has been rarely mentioned, i. e., the extreme thickness of the umbilic cord at birth, which may be due to a partial endophlebitis obliterans, involving the umbilic veins.

3. Diagnosis of Syphilis.—Fox, in speaking of the diagnosis of syphilis and the lack of characteristic signs in many cases, as well as of the history of infection, says that it is extremely difficult to get a definite history of the disease, though the patient may be perfectly honest. The common statement that lying is a pathognomonic symptom may be a good joke, but in his experience, it is seldom true. Pigmentary indications of previous syphilis are rarely of much service. Scars often form a permanent record. There is nothing characteristic in a single scar,

but a number of them and their arrangement on the skin are often characteristic. If found arranged in a semicircle or in groups, the diagnosis of former syphilis is justifiable.

4 and 5.—Treatment of Syphilis.—Taylor advises the putting off of active treatment of syphilis until the secondary manifestations of the disease begin to show themselves—early treatment may simply retard matters and embarrass later methods. There is also an advantage in the patient having enough the matter with him to recognize that he needs treatment. It must be persistent and long continued. He begins with one-half-grain doses of tannate or protoiodid of mercury three times a day and gives attention to the stomach and intestinal canal and the mouth and throat. He then begins inunctions of mercurial ointment, and later a more effective treatment with this method, discontinuing the pills. While the patient is undergoing the mercurial treatment he should have one or two vapor baths a week on retiring, and when practical, Turkish baths without the plunge, and after them perspire freely. Cold salt-water baths are often beneficial, at the seaside, and an occasional hot salt-water bath, followed by packing and a sweat. The physician should be familiar with the technic of hypodermic injection of bichlorid of mercury and use them as a reserve. He should also bear in mind that mercurial vapor baths have a limited but important place in the treatment of secondary syphilis. Bangs, on the other hand, is inclined to commence treatment early, and favors the excision of the initial lesion whenever its situation permits. He also uses early mercurial treatment, internal and external. The duration of the treatment depends upon the individual, but he thinks it should be continued to some extent for at least three years, if not longer.

6.—Holmes completes his report on the use of antiphthisic serum (vide JOURNAL, April 1, p. 724 and April 8, p. 779.)

9. Classification of Epileptics. Bullard divides epileptics into four classes: traumatic; toxic, including alcoholic, absinthe, lead, etc.; organic, from brain diseases; and syphilitic. As a symptomatic classification, he suggests: 1, that in which grand mal is the prominent feature; 2, that in which petit mal prevails; and 3, that in which automatic action forms the chief symptom. These may be subdivided according to the pleasure of the observer. Other classifications which he suggests are those based on violence, dangerous tendencies, etc.; and, among the mildly insane, according to the degree of dementia and ability to do light or regular work.

10.—Test for Diagnosis of Syphilis.—Cabot and Mertins find that Justus' test, which consists in the behavior of red blood-corpuscles under the influence of mercury, the hemoglobin being rapidly reduced under its influence from 10 to 20 per cent., is confirmed by their experiments. The results of these experiments were as follows: positive reaction in seven cases of syphilis, negative reaction in thirty-two control cases of other diseases, and a positive reaction in one case of chlorosis.

12. Antiperiodic Treatment of Insanity. Anderson calls attention to malaria as one of the most common causes of insanity, and maintains that there are many cases in institutions which can be relieved by antiperiodic treatment.

16.—Widal Test.—In summarizing the results of the Widal test as applied to 230 cases of typhoid fever, Anders and McFarland found that a positive reaction was obtained in the majority (128) of cases prior to the appearance of the rose spots, or before the eighth day of the disease; 36 cases showed a reaction during the second week, 45 between the seventeenth and the twenty-first day, 8 on the twenty-fifth day, 2 as late as the twenty-eighth day, while the remaining 11 cases were negative. It was observed that when a positive reaction had been obtained early in the couse of the disease, re examination at a subsequent period invariably gave a similar result, emphasizing the diagnostic importance of applying the test even late in doubtful cases in which an opportunity for earlier examination had not been afforded.

17.—Myxedema.—S. Kuh reports two cases of myxedema, the infiltration in each case appearing first in the cervical region, hard and resisting in one case, while in the other the infiltration would vanish completely after a short existence, to reappear again in spite of treatment. These cases differed from the ordinary cases of myxedema in the mental symptoms observed, the first presenting well marked hypochondria. The second gave a history of some acute mental disturbance, accompanied by hallucinations early in the disease. In the later stage an aboulia without any other psychic disturbance was observed.

18. Hyperphoria.—From a clinical study based upon 287 cases of hyperphoria found in examining 2300 cases of refraction, Posey concludes: 1. Hyperphoria of one degree or more will be found to exist in about 13 per cent. of all cases of refration. 2. Although hyperphoria usually bears a close relationship to the degree of esophoria and exophoria existing in any case, the existence of a high degree of esophoria or of exophoria does not necessarily imply the presence of hyperphoria. 3. High degrees of ametropia need not be accompanied by hyperphoria. 4. In anisometropia hyperphoria is present in all cases in which the difference in refraction between the eyes is at all marked, even when associated with a moderate degree of esophoria or exophoria. 5. Strabismus, both convergent and divergent, is invariably accompanied by hyperphoria, of which at least one quarter is latent. 6. Latent hyperphoria is of frequent occurrence, is independent of the states of the lateral muscles, showing, however, a greater disposition to occur when associated with exophoria (2 per cent.) than with esophoria (1.67 per cent.) or with lateral orthophoria (1.12 per cent.). 7. Latent hyperphoria develops quite independent of age; is equally as liable to develop in myopia as in hypermetropia. 8. Correction of refractive errors is not as a rule sufficient to overcome the existing hyperphoria. 9. Headache is the most frequent symptom, and is commonly of the supra-orbital type. In the treatment of hyperphoria the use of the vertical prism is suggested as most satisfactory. Tenotomy is best resorted to only in cases of high degree of vertical insufficiency, and for those rare cases of low degree when emmetropia is present in both eyes.

21. Enlargement of Epitrochlear Glands.—Epitrochlear glandular enlargements Cabot has found to be absent in a considerable number of syphilitic cases, while hyperplasia of these glands was frequently observed in cases presenting no specific history; he considers epitrochlear adenitis of no importance in the differential diagnosis of syphilis.

22. Ureteral Catheterization.—Landau discusses the importance of ureteral catheterization and notes seven conditions in which it is of value: 1, in cases of obstruction to the ureter from scar contractions of surrounding tissue contracting its caliber; 2, in reuniting the peripheral and central portions of the ureter in operation; 3, the diagnosis of kidney trouble in cases of vaginal operation and in this instance the catheterization was by the vagina; 4, the value of ureteral catheterization in operations for uterine carcinoma; 5, a condition somewhat similar; as in cases of hysteromyomectomy, the introduction of the ureteral catheter in the ureter in this case is a precautionary measure; 6, ureterovaginal fistula, in which the instrument is introduced by the vaginal route; 7, when there is danger of ligating the ureters bound down by adhesion. Here the damage can be detected by ureteral catheterization.

23. Surgery of Uterus and Appendages.—Lawson Tait's article is not easily abstracted fully. It is largely a plea for the complete removal of organs which some more conservative surgeons think should be spared if possible. The special effects claimed by some to follow the removal of the ovary are ridiculed by him. The article is written in a very lively style, and is, perhaps, itself subject to criticism as to taste and temper.

24. Massage in Constipation.—Illoway pleads for the value of massage in the treatment of constipation, and reports five cases in which it was used to advantage. He thinks mechanic methods are the most promising for the cure of this condition.

25.—Edema Following Gunshot Wound.—W. J. Love reports a case of malignant edema following gunshot wound in the leg, and requiring amputation. The microscopic and bacteriologic examination was made by Prof. C. A. Carey of Auburn, Ala., and a bacillus, apparently the bacillus aerogenes capsulatus, was detected. The microbe, however, in Dr. Carey's examination differed from the type in regard to its motility and in the fact that after several cultures it becomes aerobic and nonpathogenic.

26. Stypticin in Uterine Hemorrhage.—Boldt discusses the literature of stypticin (cotarnin hydrochlorate) and briefly reports a number of cases in which it has been employed for uterine hemorrhage from various conditions, generally with favorable results. It was administered by the mouth in doses of ½ grain, and hypodermically in as much as 1½ grains. He concludes his paper with a general therapeutic review of the published experiences of other physicians. His own conclusion is that in certain forms of uterine hemorrhage it is almost a specific and he finds no unpleasant symptoms, even when given in large doses. He does not find it to be at all hypnotic, as stated by Gottschalk,

28.—Erysipelas and Treatment.—Allen's paper largely favors the use of ichthyol as the principal remedy in erysipelas, applied locally in a 25 or 50 per cent. watery solution. Aside from ichthyol prescriptions in pill form to correct some gastrointestinal disturbances, or something to relieve headache, no internal medication was used. For several years he has not given a single dose of tincture of iron in this disease.

29.—Pityriasis Rubra Pilaris.—Ravogli's article is a full and elaborate discussion, and describes the symptoms, pathology and etiology, so far as known. As regards treatment, he does

not give much encouragement except as to temporary amelioration of the symptoms. He finds good results in improving the digestion, and attention to the excretions, local application of naphthalin in vaselin, also from tincture of tar.

30. **Acute Alcoholism.**—Bauduy, recapitulating, asserts that practical observation upon the treatment, proves that: 1. Acute alcoholism is a self-limiting affection. 2. Acute alcoholism results not from sudden withdrawal, but from excess and abuse of alcoholic, so-called "stimulants," better called sedatives and narcotics in the doses in which they are taken. 3. The expectant plan of treatment is the most rational. 4. Opiates are dangerous because they additionally derange digestion, and, acting as powerful cardiac sedatives, tend to paralyze the heart, and, finally, because they check elimination, interfere with the normal secretions and digestion. 5. Sleep is never to be attained at risk or hazard to the patient, but is to be expected as one of the harbingers of a convalescence not to be forced. 6. In acute alcoholism, as in many other acute diseases, the vis medicatrix is fully adequate in most cases to produce the happiest results.

32. **Typhoid Perforation.**—Taylor adds one more to the still limited number of cases of successful operation in typhoid perforation of the bowels. His case is of interest, since the operation was performed fifteen hours after the accident, but the symptoms were not as severe or the leakage from the bowels as great as in some cases. Convalescence was uneventful. Statistics should now read, sixty-one operations, fourteen recoveries.

33. **Inflation of Rectum.**—Martin reviews the literature of atmospheric inflation of the rectum, which he calls proctoscopy. He relates also four cases showing the advantage of this method, and advises it as a routine practice in suitable cases of rectal disease.

38. **Infantile Cerebral Palsy and Epilepsy.**—Clark and Sharp find the causes of infantile cerebral palsy obscure and testimony on this point unreliable. Prolonged labor appears to be as potent a one as any. In most cases there are neurotic heredity and degenerative stigmata. The symptoms of the onset in their forty cases were generally the same, vomiting, prostration, and convulsions of the side later paralyzed. In but three were there general convulsions. In about one third of the cases the remaining paralysis was very slight and only to be discovered on the closest examination. The authors suggest that many so-called idiopathic epilepsies may have this origin or accompaniment, and call attention to the futility of treatment in these organic cases. What is to be done must be mostly along pedagogic lines.

40. **Epidemic Influenza.**—O'Donovan describes influenza in young children as observed in a recent epidemic of la grippe in Baltimore. There was generally a short initial stage of excitement, followed by vomiting and high fever, rapid weak pulse, bowels slightly costive, general prostration. Except calomel to move the bowels, drug treatment seemed useless; little food was given and the patient was kept quiet in bed, in a well-ventilated room. The disease, if uncomplicated, was of short duration and recovery was rapid; there was none of the prolonged convalescence so often noted in adults in this disease.

41. **Pertussis.**—The chief point in Dr. Taylor's short article is the therapeutic value of vaccination in the cure of pertussis. He refers to eleven cases thus treated by Dr. W. B. Taylor of McKeesport, Pa., nine of which were thus cured in two weeks, and two passed out of sight but were presumably relieved. He also calls attention to the following prescription: amyl nitrite, ℥ss; spts. chloroformi, ℥iii; ether sulph., ℥v. Misc. A few drops on a handkerchief applied to the child's nose has, he thinks, been of value in relieving the paroxysms.

44. **Traumatic Pneumothorax.**—Matas very thoroughly reviews the surgical history of acute traumatic pneumothorax, the danger from collapse of the lung, and the methods that have been employed to prevent it. The best promise of overcoming the difficulties, he points out, is in the Fell O'Dwyer apparatus for artificial respiration, the value of which has already been proven in various other ways. While this American apparatus for inflation of the lungs had shown its usefulness long prior to any foreign invention, he says that it is only just to note that a similar method has been independently devised abroad for this particular purpose of lung inflation in pneumothorax, by Dr. Doyen, apparently following the suggestions of Tuffier and Quenu, who had experimentally demonstrated the possibility of lung inflation.

46. **Talipes Equinovarus.** Jonas proposes the making of a triangular flap to fill the wound in the talipes equinovarus operation, and describes his method in detail (a modified Phelps' operation). Its advantages are the better nutrition from the broad base and less danger of sloughing, the better filling of the wound and the avoidance of an extensive granulating wound with its contracted scars. In his operation he divides the plantar fascia diagonally from before backward, leaving no dead space between the ends of the severed fascia, which still touch and can be sutured if necessary. By dividing the neck of the astragalus, the need of opening the astragalo-scaphoid joint is avoided, thus preventing the separation of the joint surfaces, which tends to cause a relapse.

47. **Empyema.**—Bogart analyzes twenty-three cases of empyema of the thorax in children, and points out its diagnostic points and the indications and special features of the operation for its relief.

48. **Acute Articular Rheumatism.**—O'Conor claims that, since his former publication (*Glasgow Med. Jour.*, October, 1897), further experience has fully confirmed his opinion then expressed, that arthrotomy and free incision are a specific cure for what is called acute articular rheumatism. He is also convinced that it is an infective disease due to germs that enter the body through the tonsil or other microbial trap-door. He claims a joint can be opened and drained for weeks without risk of septic contamination or loss of function, and reports ten cases where one or more joints were thus opened with excellent results. In seven of the cases, one or both knees were opened, and in several a number of joints—ankles, wrists, knees and elbows were operated on. He claims it is difficult to infect an open drainage joint, and as evidence gives a brief account of an additional case where a man with an open, freely discharging knee-joint, kept at his work of dock digging without protection. . . . "Four months exposure to mud shifting, trousers, and a Saturday night lather failed to infect this patient's knee-joint."

50. **Inflammation of Gall bladder.**—This thorough discussion of gall-bladder inflammation and its management is based, as stated, chiefly upon cases published last June (*Am. Jour. of the Med. Sci.*). Here, however, Richardson publishes a new series of thirteen new cases and also an interesting report of one case of pyonephrosis that was taken for a cholecystitis, showing some of the difficulties of diagnosis. In several of the cases bacteriologic examination revealed the source of infection. The organisms found were the colon and typhoid bacilli and, in one case, the pneumococcus. Neither typhoid nor pneumococcus infection had revealed itself elsewhere.

52. **Malarial Disease and Ear.**—Roosa remarks on aural diseases simulated by malaria, and reports the auto-history of one of his patients, a physician, in whom the malarial disorder was mistaken by the attending physician for acute aural disease, and calls attention to this possible error in diagnosis. He does not think the distinction difficult if the physician is on the alert, and deprecates the tendency to operate in every case of high temperature with ear symptoms. "It is not difficult," he says, "to distinguish a septic rise of temperature, with its irregular, vacillating curve, from that of pronounced, intermittent fever, which rapidly reaches its height, and as rapidly descends."

54. **Sprains.**—Allen expatiates on the value of massage in the treatment of sprains, and reports a case showing its advantages.

55. **Respiratory Diseases.** Butler discusses the treatment of pleurisy. The chief indication is to relieve pain, which is done by local external methods and physiologic rest for the chest, but the administration of anodyne drugs such as opiates is necessary, with some of the coal-tar antipyretics. The diet is one of the chief factors in the treatment, and should be light and nutritious. Saline diuretics and purgatives should be employed, and if there should be exudation, special remedies that are supposed to have some effect upon it, changing its character from fibrinous to serous, may be given. The operation of thoracentesis is a last resort.

56. **Torsion as Hemostatic.**—Justice suggests the more general use of torsion for the stoppage of hemorrhage in the arteries in operations, preferring it, in many cases, at least, to a ligature. He has witnessed a large number of amputations involving the larger vessels, in which this method was used without any disastrous consequences, in the practice of Dr. Otis Johnston, and Dr. Johnston himself claims, according to Justice, that in more than one thousand operations he has never had a secondary hemorrhage. He has not used ligatures for the stoppage of hemorrhage except in the abdominal cavity, and he had lately begun also to use torsion there. His method is to twist the artery until the middle and internal coats can be felt to yield and then withdraw the forceps. He claims that when the timidity of surgeons as to this method has been overcome, the ligature will become largely obsolete.

58. **Epiphyseal Separation.** Fowler reviews the literature on separation of the lower humeral epiphysis, and adds two new cases. The subjects of diagnosis, complications, treatment, etc., are discussed. Supracondyloid fracture, with which it is

most likely to be confounded, is recognized by its usual higher position and less transverse direction, the character of the crepitus and the age of the patient affording a presumption of separation. The most serious complications are swelling and interference with nerves by callus. Probably less than 50 per cent. recover with perfect joints. Flexion is the best position in treatment. Pressure over the elbow should be avoided. Massage and passive motion should not be tried until the third week.

59.—Poisoning.—Coughlin reports several cases in which the unexpected happened, among them one of poisoning by 1 500 grain of hyoscin hydrobromate and several that suggest caution in the use of chloral and bromids, one of eclampsia apparently from strangulated hemorrhoids, and one of the survival and subsequent healthy growth of an apparently five-months child.

60.—Kortright calls special attention to prophylactic measures in cases of pregnancy complicated with kidney disorder.

64. Leprosy in Norway.—Hansen's article is in reply to the charge that Norway rids itself of leprosy by emigration. He shows that the decrease is due to the policy of isolation adopted and, as regards Scandinavian leprosy in America, he states that he found but one case that possibly had acquired the disease in this country by contagion, and that the disease had nowhere spread among the immigrants. This he attributes to better habits of cleanliness learned by them. The greatest danger to this country is, in his opinion, the importation via the Pacific ports.

66.—Wheat Jelly. Bulkley calls attention to wheat jelly as an article for infant feeding. A teacupful of cracked wheat is put in a pint of cold water in the evening and allowed to cook slowly for two hours in a rice boiler, and is then set aside over night. In the morning it is somewhat jellified. More water is added and it is slowly cooked for two hours more. Then it is passed through a fine sieve, removing the hard parts, and is ready for use, representing all the nutritive properties of the wheat. It should be prepared fresh every day. It is in children who can not nurse and whose nutrition suffers, as shown by frequent eczemas, etc., that this preparation is most useful. He gives it in doses of a teaspoonful with each feeding in very young infants: older ones will stand a tablespoonful.

67.—Erysipelas.—Eshner recommends pilocarpin in the young and robust with no cardiac disease; in the other class, including the aged and debilitated, quinin and iron in combination. Attention to the excretions is required and, for local application, he recommends equal parts of ichthyol and lanolin.

68.—Adenoids.—Felt says that when the symptoms of adenoids are mild and the child approaching adolescence, the hypertrophy moderate and of the soft springy variety, alkaline washes and instillations, twice daily, of a 1 per cent. solution of menthol may suffice for treatment, but if no improvement is noted in three or four weeks more active measures are needed. In other cases with more marked symptoms, operation is advisable or even imperative.

69.—Breast Tumors.—Rodman claims for American surgeons the merit of having done better work in cancer of the breast than any others. Thoroughness of the operation, including also the axilla, is essential. No one can tell that glands are not enlarged until this is done. He does not follow Halsted, however, in considering it always essential to remove the pectoral muscle or to follow up the cervical glands in all cases.

70.—Color-Blindness.—Reynolds dilates on the importance of color-blindness, calling attention to the acquired as well as the congenital forms. He thinks Holmgren's test imperfect as not giving all the deficiencies. For those engaged in night work the lantern test is better.

71. Urethral Stricture.—According to Neely, the main indication in the treatment of stricture is drainage of the bladder. It is the symptoms due to imperfection in this regard that affect the general health and call for treatment. He illustrates an instrument he has devised, consisting of a soft catheter attached to a plain glass p. p. syringe. The patient is directed to introduce the catheter about four inches and throw a weak astringent wash (very weak solution of zinc sulphate) through it. This, used daily by the patient, with the introduction of a sound by the physician about twice a week, has been satisfactory in most cases. In "small" or "inorganic" permeable stricture, he prefers treatment by dilatation, and for impermeable and deeply seated, tortuous strictures, the external rather than the internal urethrotomy is safer and more satisfactory.

74. Hernia.—Smythe's paper is a plea for the radical operation in reducible hernia, especially in those younger patients whose business or residence requires them to be out of reach of immediate surgical assistance. The operation—Halsted's is the one he prefers—is simple and safe, and successful in 80 per cent. of cases when performed by a skilful surgeon. It is only contraindicated in obese patients and those of middle or advanced age.

76.—Marsden's Paste in Epithelioma.—Tate advocates the use of arsenic paste in epithelial growths and reports three cases briefly. The first application should be made by the physician, the later applications (two or three or more) may be only under his general supervision. The formula he gives is that of Dr. J. A. Wyeth: arsenious acid, 5ii; pulv. gum acacia, 5i; cocain, gr. xviii; aqua, q. s. ft. paste.

86.—Migraine.—Collins says the treatment of migraine may be considered under two heads: treatment of the patient for the disease, and treatment of the attack. The treatment of the patient should be begun before the patient is born. The principal features are hygienic exercise, suitable diet, attention to excretions, etc. A careful examination should be made for any abnormalities of the eyes, ears or any other organs that may have any bearing on the disorder. The immediate antecedents of the attacks must be carefully studied to remove the causes. Such physical methods as massage, gymnastics and electricity are useful in a general way, but have no specific effect as is popularly supposed. Drugs are simply to be used as general tonics, when required. The attack requires some anodyne, especially in severe cases. Morphin is rarely required. Phenacetin, antipyrin, salicylates, etc., will usually suffice if judiciously administered. While he does not accept the intoxication theory to the same extent as some, he yet believes that gastro intestinal intoxication exists to a certain degree and measures should be adopted to relieve it.

92.—Pernicious Malarial Fever. Gilstrap describes pernicious malarial fever, its different types, the gastro-intestinal, esthenic, algid, comatose; the diagnosis from cholera, yellow fever, meningitis, and dysentery, and the treatment. The latter is prophylactic, if possible. At the onset give a brisk purgative, followed by quinin up to cinchonization, this to be maintained till the danger of a second paroxysm is past. If the blood, however, has become acid, as shown by a pale, white tongue, sallow, dusky skin, enlarged and tender liver and spleen, first correct this condition with hyposulphite of soda four times a day and then give quinin. The general indications are to tide the patient through the pending paroxysm and ward off the coming one. Aside from the quinin the treatment is symptomatic, hot applications and stimulants in the cold stage, morphin hypodermically for vomiting, cramps and diarrhea. Cinchonism need not be feared, quinin does not kill, and more persons have died from timidity in giving it than from overdosing. After the first stage is over and danger of collapse has passed, give a mercurial purgative, to act upon the secretions, but withhold all depleting agents till reaction is well established. In the second stage, if fever is high, and in cases of fast bounding pulse with headache and nervous spleen, bleeding or veratrum viride may be indicated. Cold water is the advised antipyretic; use it freely. In the convulsive form, with active hyperemia of the skin, with pigment obstruction of arterioles and capillaries, stimulating rubifacients are of great value. Sometimes blisters over the stomach and occipital regions are of benefit.

100.—Sand Filtration.—The article by Professor Lea is a lengthy and copiously illustrated one on sand-filters, describing the principal designs and explaining the efficacy. There is appended a series of statistics of typhoid fever in the principal cities of the world, classified according to the mortality rates. The article will be convenient for reference on this subject.

FOREIGN.

Lancet, April 1.

Strangulated Hernia. MANSELL MOULLIN.—In this clinical lecture is described a case which appears to Moullin to be unique, of a man 40 years of age who was received in the London Hospital, December 2, having been suffering from pain of a griping character in the epigastrium, with vomiting. He had had four previous attacks of a similar character. The abdomen was moderately distended, sensitive but not tender, and a fairly well defined swelling could be felt. Pain in McBurney's spot was not noticeable. A soft bulging mass was found in front of the rectum on the right side. The diagnosis was epityphlitis. On December 4 the patient was sick three times and the vomit was distinctly offensive. He, however, had no pain and wished to go out. The abdomen became more distended and an operation was performed. The patient died shortly after the operation, and at the post mortem examination a loop of the ileum was found lying in a sac behind the cecum, communicating with the general abdominal cavity by an opening a little over an inch in diameter. The ileum was ulcerated through and there was general septic peritonitis. He discusses the condition of the formation of this pouch, which was greatly

exaggerated on account of the swelling and enlargement of the intestines in this case.

Blackwater Fever. W. H. CROSSE.—This concludes a paper begun in a preceding number on this subject. Having stated the symptoms the author gives illustrated cases and describes the general course of the disease. He discusses the theories that it is due to quinin, that it is a distinctive entity, that of Sambon, that it is paroxysmal hemoglobinuria, which is overthrown by the fact that parasites are found in the blood, and lastly, the theory that it is not a distinctive disease but is merely a complication of malaria, which he thinks is on the whole supported by evidence. He thinks the hemoglobinuric complication is analogous to chlorate of potash poisoning and paroxysmal hemoglobinuria. It is simply the result of the preceding hemoglobinemia. In the treatment three distinct features are presented: 1, the attack of malaria; 2, chronic malaria, toxemia predisposing the patient to the attack, and 3, the sudden loss of hemoglobin, which is in effect similar to that of a severe hemorrhage. He believes in the hypodermic use of quinin when it can not be otherwise easily administered for the malaria. As regards the other two factors, the main indications are to keep up free excretion to get rid of the toxins, avoiding overpurgation. Opium should be given to produce rest. Nutrition must be maintained by rectal feeding if necessary. A change of climate is advisable.

Laminectomy in Cerebrospinal Meningitis. H. D. ROLLESTON and H. W. ALLINGHAM.—This case of cerebrospinal meningitis was treated by laminectomy and incision of the dura mater in the dorsal region and the authors call attention to the good effects of the latter in relieving increased tension, and claim that this was more perfectly effected by laminectomy and incision than by the slighter operation of repeated lumbar puncture. There is, however, a danger of oversecretion of crebrospinal fluid.

Phenomena of Chorea. J. W. RUSSELL.—A paper by Mitchell and Rhein, in which they divided cases of chorea into groups, according to the handwriting is alluded to. His own autographs in this line were reproduced before he had knowledge of their paper. He describes five different types: 1, one in which the choreic movements affect the writing more or less decidedly; 2, one in which, while the chorea may be severe, the patient is able to control the movements and write comparatively well; 3, with slight chorea, the writing is greatly interfered with; 4, one of which he has only known one example, where there was almost inability to write at all, although control of their movements is fairly good for a time; 5, group containing cases of which the inability to write is of psychic origin, writing is impossible, and much central defect.

British Medical Journal, April 1.

Typhoid Without Lesion of Intestine. J. H. BRYANT.—The writer publishes a case of typhoid fever in which, from personal observations during life, the clinical features of the disease were markedly present. The Widal reaction was clear, yet at the autopsy no lesion was found in the intestines, but the typhoid bacillus was found in abundance in the enlarged mesenteric glands. He notes that such cases are not unknown, but are especially mentioned by Osler in his last edition of "Practice of Medicine." He reviews some fifteen cases in which this form of typhoid without intestinal lesion occurred in patients of nearly all ages, and which shows clearly the possible widespread distribution of the typhoid bacillus in the body.

Gas Poisoning. J. LORRAIN SMITH.—Five cases of gas poisoning are reported and he discusses the pathology of the condition. The most important feature is the saturation of the hemoglobin with carbonic oxid, which is equivalent to depriving a person of oxygen in the air breathed. The after-effects are noted in the fall of the body temperature, inability of patients to move, or exert themselves, increased excitability of the nervous system, mobility of the heart, and sometimes pathogenic germs cause death from other diseases at an earlier or later period after the accident.

Calmette's Antivenomous Serum. D. SEMPLE and G. LAMB.—These authors conclude that we have in this serum a remedy which, if properly employed, is efficacious in all cases of bites by poisonous snakes. Assuming that .045 gram can be injected by a cobra, the amount of serum required to save life would be the amount which is able to neutralize that amount, less .030, the maximum non lethal dose (.045 – .030 .015). Assuming that 1 c.c. can neutralize .001 of a gram of cobra poison, thus to neutralize the extreme dose of .045, 15 c.c. of the serum would be required to save life.

British Gynecological Journal (London) Part lvi.

Gynecology Among the Insane in Private Practice. ERNEST HALL.—Hall's paper is a plea for more thorough inquiry into insane cases among women, and he reports a case in detail, one among others upon whom he operated. Briefly, the woman had enjoyed good health until at 35 years of age considerable sickness and trouble in the family brought on intermittent melancholia, from which she suffered for eight months. At this time pronounced insanity developed, with suicidal tendency. She was then committed to an asylum where she remained for nearly three years. During this time she was at times very violent, and her case was considered hopeless. Hall, having obtained permission, examined the patient under anesthesia and found that the right ligament was thickened, left ovary prolapsed, uterus fixed and perineum partially ruptured. An operation was decided upon, upon making which, the left ovary was found adherent in the cul-de-sac, and the fimbriated extremity closed; the appendages were removed and uterus curetted. The mental condition remained unchanged until the fourteenth day after operation when she became calm and recognized her mother. She greatly improved both mentally and physically, and left the asylum thirty-five days after operation, and has since managed her household duties with all the energy and reason of her former self. The writer makes a plea for more thorough inquiry into insane cases among women, and urges upon all physicians the necessity for making a thorough pelvic examination under anesthesia in every case before signing papers of committment.

Vaginal Hysterectomy for Malignant Disease of Uterus.—FREDERIC BOWERMAN JESSET. Jessett submits the result of seven years' work in this operation. He emphasizes the necessity of early diagnosis and urges thorough examination when there is hemorrhage, discharge or pain, especially during the menopause. It is his practice to be guided as to whether or not to operate, by the mobility of the uterus; if this if freely movable, no matter if the vaginal walls are encroached upon, he advises an operation. If the uterus is fixed, or the broad ligament much invaded, he does not advise an operation. If, on examining a patient with a discharge from the uterine cavity, at or past the menopause, the discharge being colored or offensive, and the introduction of the sound causes bleeding, he would feel that he had to do with a carcinoma and would operate. If he had doubts, he would dilate the cervix, curette, have the débris examined microscopically, and if the report were unfavorable, he would remove the uterus. He does not believe that the iliac glands are affected till late in the disease—not as long as the disease is limited to the uterine tissue proper, hence this is not to be considered as an early diagnostic point. In his operations he uses the ligature because he thinks the patient does not afterward suffer as much pain. There is also less fear from sloughing than if the forceps are used. So too there is danger from hemorrhage when the forceps, but not when the ligatures, are removed. He would operate in some cases, even though a cure could not be expected, as it would result in stopping a foul smelling and painful disease, so that while life might not be prolonged it would be made bearable. He reports 107 cases of which 9 resulted fatally, 3 from shock, 1 from intestinal obstruction, and 4 from peritonitis. He gives the final statistics, but he lost trace of so many of the cases that his statistics are of no benefit.

Saline Irrigation in Abdominal Operations. GEORGE A. HAWKINS-AMBLER.—The writer believes that hot water irrigation in abdominal operations is used for all sorts of reasons and for no reasons at all, and with this belief discusses the value of, and objections to, the practice. Incidentally he objects to a combination of irrigation and drainage, and believes that when thorough irrigation has been done, there is not only no need for drainage but the drainage tube is a source of danger in that it is an open door for sepsis, and a cause of weakness in abdominal scars, and is not now considered a necessary adjunct of irrigation as it used to be. The first object of irrigation is to cleanse the cavity. It is the best method for washing out blood-clots as it reaches holes and corners that the sponge can not reach. It cleanses the peritoneum, omentum, etc., without undue exposure or handling. To irrigate the abdominal cavity with a copious flow of hot water insures the escape of particles of clot and filth, and prevents improper pressure and injury to the diaphragm and intra abdominal viscera. It is the best means of insuring the peritoneal cavity to be free from threatening materials. At the same time no better and no worse system of cleansing the peritoneal cavity exists. He proceeds to give its advantages, and besides those already mentioned claims that it cleanses the cavity quicker, with less damage to the abdominal organs, etc. But it is different when there is pus and septic matter. To irrigate an abdomen which contains septic matter invites disaster, as the material is washed into more distant regions and insures infection of a wider area. Irrigation can not be too heartily condemned as the means of removing septic matter. He does not believe that irrigation is of much use in acute diffuse peritonitis, elaborate sponging of

the affected area being best for this. Nor does he believe in the use of irrigation with hot water to check hemorrhage, since he thinks that the peritoneum will be injured with a temperature higher than 104 degrees and this will have but little if any beneficial effect as a hemostatic. While Keetly suggests the use of water at a high temperature, as high as 124 degrees, and Tait 120, the writer thinks these temperatures are not safe. For bile, feces, urine, tumor contents, and similar irritating fluids, he advises irrigation. He prefers normal saline solution to pure water. The absorptive capacity of the peritoneum, the loss of plasma and other phases of the question are also considered.

Medical Press and Circular (London) March 15.

Vanishing Tumors. D'ARCY POWERS.—The writer notes a class of swellings to which he gives the name of "vanishing tumors," that disappear after such slight surgical operations as incision, puncture, or even exposure. They are not to be confounded with phantom tumors, as they are very red, and while generally innocent, may be even malignant in their character. One of his six cases was of this character, microscopic examination showing it to be a fibrosarcoma. The patient came six months after an injury to the head, and had multiple tumors of the head which mostly disappeared after reaching the size of a pigeon's egg. One continued to grow, and was removed, the microscopic examination giving the result stated above. Apropos to this case Dr. Powers alludes to carcinomatous growths having been known to heal, at least superficially, and scirrhus absolutely, sometimes atrophying, in aged and spare people. He also referred to cases of cancer vanishing after removal of an ovary, hypertrophied prostate after castration, etc.

Otitis and Influenza.—MACLEOD YEARDSLEY.—The different forms of otitis from influenza are described. The acute form occurs in two types, that appearing with the primary disease and that occurring seven to ten days later. The symptoms are substantially the same, only that the first are more intermittent and severe, the deafness less durable and the general prostration more marked. The difference between an ordinary and an influenzal otitis is the suddenness of onset and greater severity of the latter, the more distinct intermittence, more frequent and longer nocturnal paroxysms. Perforation of the membrane does not give much relief to pain, the deafness comes on gradually and lasts three or four weeks or longer, the prostration is greater and insomnia marked. There is intense congestion and swelling of the membrana tympani, frequently with ecchymosis, punctate or diffuse. The discharge after perforation is rarely abundant and purulent, and may be serosanguinolent during its whole continuance. There are three types of this suppuration in influenzal otitis: 1, that above described; 2, a primary mastoiditis due apparently to direct infection and not to extension; 3, rapid caries and necrosis of the ossicles and mastoid, probably all directly due to Pfeiffer's bacillus. The second type is important as needing prompt treatment to prevent cranial or sinus complications, and pain or tenderness over the mastoid, whether following discharge or not, is a danger signal calling for immediate careful examination. Its tendency is to work inward rather than externally, hence the greater danger. The third form of suppurative disease is an advanced condition of the obstructive process in the ear and in the mastoid when that is involved. The treatment is actively antiphlogistic, leeches applied early, hot antiseptic fomentations, prompt paracentesis when required, followed by antiseptic treatment. Insomnia calls for hypnotics: sulphonal, trional and paraldehyde are recommended. If the mastoid is attacked and antiphlogistic treatment fails, operation should be promptly resorted to. Bulging of the posterior meatal wall, nystagmus, retinal changes and facial paralysis are bad symptoms. If the abscess is found confined in the superficial mastoid cells, Politzer insists that no communication be made between them and the antrum.

Bulletin de l'Academie de Medecine (Paris), March 14-21.

Extrauterine Pregnancy Diagnosed at Sixth Month and Successfully Operated at Term. A. PINARD.—This is the second healthy child that Pinard has exhibited to the Academy, born in this way. After the diagnosis was established he instituted a special course of hygiene, and at approximate term, opened the sac by a simple incision in the abdomen and fetal cyst. After extraction of the fetus the walls of the cyst were sutured to the skin; the placenta was eliminated piecemeal, concluded in three months. The child weighed nine pounds at three months, nearly twice its weight at birth.

Dangers of Chilling Infants. P. BUDIN.—The evil consequences of allowing new-born infants to become chilled is emphasized by Budin, who states that out of 103 infants weighing three pounds, brought to the Maternity, with a rectal temperature of 89.5 degrees F., only two survived; only one out of 39 weighing four pounds, and that death was almost certain at this temperature for even the better developed infants. The necropsy showed a fatty degeneration of the tissues. He advocates transporting weakly infants in incubators, mentioning an instance in which a prematurely-born infant had been sent from Nice to Paris in its incubator, without injury.

Osteomalacia in a Man. P. BERGER.—Berger describes a case of osteomalacia affecting a young man with no hereditary or personal antecedents to explain its etiology. The spine was the only part of the skeleton unaffected. Interstitial nephritis also threatened an early fatal termination. The respiratory quotient was very much increased, also the proportion of oxygen absorbed by the tissues, while the assimilation of the "ternary substances" was decreased. These facts are not reconcilable with any of the theories yet advanced to explain the etiology of osteomalacia. They also suggest that the treatment of osteomalacia should aim to improve the utilization of the "ternary substances," to stimulate the action of the organs that digest these substances, to favor their oxidation, promote the digestion also of nitrogenous substances, and to retain the lime salts in the economy and diminish their destruction.

Semaine Medicale (Paris), March 29.

Water Diet for Gastro-Intestinal Infection in Infants. PROFESSOR MARFAN.—A case of sudden hyperthermia in an infant with incessant vomiting, butyric odor of the breath, very slight diarrhea and choleriform feces, treated exclusively by suspension of all food and medication, and supplying the same amount of boiled water as the infant is accustomed to drink milk, was the lecture by Marfan, in which he extolled the extreme efficacy of this hydric treatment of gastro-intestinal disorders, as he has determined in a number of cases. Nothing but pure water must be given for ten to forty-eight hours.

Centralblatt fur Chirurgie (Leipsic), March 25.

Removable Buried Sutures in Radical Operations for Hernic. I. LINK.—A curved needle carrying a double silk thread is inserted below and about three centimeters to the right of the lower angle of the wound, brought up through the wound and the thread tightened after a roll of gauze has been placed under the knot. The edges of the muscle and Poupart's ligament are then laced together from below upward, the needle inserted underneath, three stitches on each side, and emerging finally through the skin above and several centimeters to the left of the upper angle of the wound, where the thread is tied over a roll. The spermatic cord is then replaced and stretched taut from the testes by an assistant. The edges of the obliquus aponeurosis are then laced together in the same way, but commencing below at the left of the wound and emerging at the right above. The skin is then sutured. By cutting the knots, each of the buried double threads can be pulled out when desired. Link removes them the tenth day and paints the superficial suture line with iodoform collodium.

Success of Stretching the Nerve in Chronic Nerve Diseases. H. SCHÜSSLER.—He reports remarkable benefit from stretching the ischiadicus or other nerves, especially in tabes dorsalis. He exposes the nerve in the gluteal fold, lifting it out of the sheath, and pulls it from the periphery, "until the foot and toes move." Traction is then exerted in the opposite direction, and if the nerve does not feel elastic, success is impossible, unless it is stretched until it regains its elasticity. In some cases he even lifted the patient by the ischiadicus—three times in one case. One of his twenty-five cases of tabes died five days later from "acute paralysis of the heart." The rest were all benefited to a remarkable extent, and more or less permanently according to the stage of their disease. He recommends it warmly, particularly for desperate cases.

Deutsche Medicinische Wochenschrift (Berlin), March 23.

Roentgen Rays in Cutaneous Affections.—Albers presented at the meeting of the Hamburg Medical Association, November 29, a number of patients with lupus, chronic eczema, favus and psoriasis, cured or in various stages of treatment with the rays, one case of lupus cured for a year, and another in which an incipient recurrence was promptly aborted. The first effect noted in lupus is a diffuse redness and heat in the part, usually after five to six exposures, followed by increasing prominence of the nodules, falling of the scabs and cleaning up of the ulcerations, while the much swollen regions, nose, lips, etc., gradually subside to normal. The epidermis is gradually cast off, leaving after weeks of treatment a smooth, delicate skin, very sensitive, but absolutely free from lupus. Chronic eczema requires only ten to twelve exposures at most. In one case of chronic impetiginous eczema of the head in a child of eleven months, the hair returned normally in a few months after the cure of the eczema.

Münchener Medicinische Wochenschrift, March 21.

Experiences with Amyloform and Iodoformogen. A. HEDDÆUS.—Several months' experience at Czerny's clinic, with these proposed substitutes for iodoform, confirms the favorable results announced by others. Amyloform (Professor Classen of Aix) proved an absolutely unirritating, antiseptic dry dressing, promoting the cleansing of suppurative wounds, with no after-effects of any kind, nor symptoms of intoxication following extensive applications. Iodoformogen (Knoll, Ludwigshafen) closely resembles iodoform in its effects, while it is practically odorless and is to be preferred to iodoform in the majority of cases, on account of its relative harmlessness.

St. Petersburger Medicinische Wochenschrift, March 18.

Improved Vaginal Ichthyol Tampons. H. POHL.—The author recommends these tampons, as they introduce the required amount of ichthyol, distend the vagina by the size of the cotton kernel and can be inserted easily without assistance, melting in five to ten minutes. An oval tampon is shaped out of 4.0 sublimate cotton (1/1000), and tied around with a sublimate silk thread. This tampon is dipped in a warm 10 per cent. solution of ichthyol, glycerin and gelatin several times, until it has become as large as a walnut, when it is placed in a mold and left to cool. It is then coated with a layer of 0.5 per cent. salicylic acid gelatin, and half a dozen, with the silk threads hanging, are packed in a box, with cotton to close the entrance to the vagina. The subject dips the tampon into a warm solution of boric acid and inserts it as she retires, withdrawing it in eight to ten hours, when she rinses out the vagina with the boric acid solution.

Hemorrhage after Swallowing a Blood-Sucker. ROSEN.—He relates that a lad came to him with a history of having drunk a blood sucker from a pitcher, and it had been causing hemorrhages from the pharynx and nasal cavities. The tail could be seen in the throat, but all attempts to seize the slippery creature were in vain. It finally was expelled lifeless, after an hour's persistent gargling with a thousandth solution of potassium permanganate.

Wiener Klinische Wochenschrift, March 25.

Glycosuria and Alimentary Glycosuria in Pregnancy. H. LUDWIG. A hundred healthy woman were examined during the last eleven weeks of pregnancy, at the Chrobak Clinic, to determine the frequency of glycosuria. Eighteen were submitted to alimentary tests with dextrose and an abundant carbohydrate diet, which demonstrated that the organism of a healthy pregnant woman is affected by the ingestion of the polysaccharoses the same as a healthy non-pregnant women; large amounts can be perfectly assimilated. Of the other 82, 26 or 31 per cent., never showed a trace of sugar during the tests, averaging seven days; 10, or 12 per cent. eliminated traces or a considerable amount of sugar fermentable by yeast, one to three times; 38, or 46 per cent., eliminated traces or a considerable amount of sugar non-fermentable by yeast, one to three times; 8, or 10 per cent., eliminated alternately and in various amounts, fermentable and non-fermentable sugar. The sugars were tested by polarization, crystalization, the phenyl hydrazin reaction, fermentation directly to alcohol by compressed yeast and the Fehling, Trommer and Almen-Nylander reduction tests.

Isolated Unilateral Traumatic Paralysis of the Trochlearis. S. KLEIS.—A healthy child of 10 fell on the back of her head, on the ice, producing no disturbances of any kind except "seeing double" in one eye. This was undoubtedly the result of some slight hemorrhage affecting only the nuclear region of the trochlearis on the floor of the Sylvii. The case throws some light on the pathogenesis of strabismus, as a paralysis of this kind, resulting from some bump in infancy or early childhood, might lead to the muscular contraction.

Gazetta degli Ospedale e delle Cliniche (Milan), March 26.

Leptothrix in Chronic Enteritis and Progressive Pernicious Anemia. P. DEMATEIS.—Numbers of spindle-shaped bacteria, evidently belonging to the leptothrix family, found in the feces of a case of combined enteritis and anemia, lead Demateis to the conclusions that the leptothrix may invade the intestines and form part of the intestinal flora. This invasion is not without importance, as it may alter the intestinal mucosa, and injure the epithelium, thus determining the lesions of intestinal catarrh and in time the passage from chronic enteritis into progressive pernicious anemia.

Operative Intervention in Penetrating Wounds of Thorax and Abdomen. MAGLIARI.—He asserts, as the result of much experimental research, that the contents of the stomach escaping into the peritoneal cavity begin to be dangerous at a proportion of 1 to 1.40 c.c. per kilogram of the animal. The contents of the duodenum are harmless only below $\frac{1}{8}$ c.c. per kilogram; of the small intestine, below $\frac{1}{32}$ per kilogram and the bile at 1 c.c. These facts emphasize the importance of prompt intervention when there is danger of an abdominal viscus having been injured. It is only justifiable in the thorax to arrest severe hemorrhage or remove a foreign body. In wounds of the liver, if suture is impossible, hemostasis can be secured with the thermocautery or galvanic loop.

Association News.

Rates for the Columbus Meeting. Some changes have been made concerning rates for the coming meeting of the ASSOCIATION. The most recent action of the Central Passenger Association regarding the rates is as follows: "One first class fare for the round trip, tickets of Central Passenger Association Form 1 to be sold on June 5 and 6; good for continuous going passage only upon date of sale, as indicated by stamp of selling agent; good for continuous return passage, leaving Columbus, to and including June 10, 1899." This one-fare rate does not apply from points from which the fare to Columbus is less than $1; the rate in such instances being one and one third fare. It is probable that the sale of tickets will also be June 3 and 4. The territory covered by the Central Passenger Association is practically that bounded on the east by a line drawn from Toronto through Buffalo and Pittsburg; on the south by the Ohio River, including towns on both sides of the river; on the west by a line from Chicago to Burlington, Iowa, and the Mississippi River between Burlington, St. Louis and Cairo. The rates from points east of the Central Passenger Association territory are now being considered by the Trunk Line Association and the rates from points west of the territory, by the Western Passenger Association, this latter association expecting to come to a final conclusion within a few days.

Public Health.

Detroit Health Report.—For the week ending April 8: Births, male 39, female 45; deaths, 102, under 5 years, 30; contagious, diphtheria, last report 3, new cases 4, recovered 2, died none, now sick 4; scarlet fever, last report 24, new cases 3, recovered 4, died none, now sick 23.

Difficulties of Recently Created Health Bureau. The bill recently passed by the Legislature of Pennsylvania suffers from defects which have already brought more confusion in that department, and City Solicitor Kinney (Philadelphia) is quoted as saying that in order to prevent considerable difficulty it might be necessary to repeal both the recent acts for the purpose of reinstating the former board of health until a measure could be drafted which would be free from the defects now contained in this new bill. It is thought that the new bill is illegal and unconstitutional. Another bill is being prepared, which it is hoped will be beneficial as well as free from errors.

Protection from Yellow Fever in Cuban Municipalities.—The chief surgeon of the Military Division of Cuba, Lieut.-Col. R. M. O'Reilly, U. S. V., issued a circular letter, March 30, 1899, to medical officers in his command in which he urges that, in addition to the measures of municipal sanitation now being taken by them, they should act energetically in attempting to prevent the spread of yellow fever among civilians. He says: "What chance of success there may be in this will depend on your securing early and exact information of the locality where any case originated. If this is known, the disinfection of clothing, bedding, premises, etc., and the segregation, isolation, or observation of non-immunes exposed to the infection will probably enable you to keep the disease within limits, if not to eradicate it. In case the local laws or usages prevent your acting freely in the matter, you are to apply to the department commander for any power needed to enable you to accomplish this essential object. In exercising such powers you are recom-

mended to secure the good-will and co-operation of the local physicians, who are not to be constrained unless in case of culpable ignorance or neglect."

Illinois Medical Legislation.—The Illinois Medical Practice Act, which passed the Senate March 28, and has now passed second reading in the house, provides, as amended, that all candidates for the practice of medicine, except graduates of legally chartered medical colleges of good standing in Illinois, shall be examined by the State board of health. It also provides for partial examination for special departments or systems, but only those licensed fully in medicine and surgery shall have the right to call or advertise themselves physicians or doctors, and licentiates of other systems can not use drugs or perform surgical operations, or those in midwifery attend other than labor cases. The State board of health can refuse certificates for conviction of criminal abortion or to those who have made fraudulent representations or been guilty of other dishonorable or unprofessional conduct, and can revoke them for the same reasons after hearing before the board. Itinerant venders of nostrums, etc., shall pay a State license fee of $100 per month. The usual exceptions of those already licensed, medical officers of the army or navy or marine-hospital service are made, and there is also a special exception of those who treat the sick by mental or spiritual means without drugs or material remedy. This excepts Christian Scientists and Dowieists, but whether it legalizes them fully may yet be a question. Penalties are provided for infraction of the law. Another bill of medical interest, now on second reading in the house, having passed the Senate, is one amending the law of corporations, which requires the secretary of state, on recommendation of the attorney-general, to revoke the charters of fraudulent diploma-mills. Still another bill before the House is one to establish an epileptic colony, and making a preliminary appropriation for selecting a site for the same.

Medical Practice in Colorado.—The Colorado Medical Practice Bill, which session after session has been tabled, pigeon-holed and otherwise maltreated, has finally passed both houses of the Twelfth General Assembly, and will become the law of the State as soon as Governor Thomas affixes his signature. The osteopaths, spiritualists, divine healers and their ilk, have put on sackcloth and ashes, and mourn their defeat. The following are some of the leading features of the bill: There is created a medical council consisting of the secretary of state, the attorney general, the president of the regents of the University of Colorado, the State superintendent of public instruction and three members of the board of medical examiners, who shall supervise the examinations and issue license to practice medicine. The governor shall also appoint nine physicians of recognized ability and standing, three from each of the State medical societies, regular, homeopathic, and eclectic, from lists of names nominated by said societies, who shall examine applicants to practice. License to practice shall depend upon graduation from a legally chartered medical college in good standing, of good moral character, etc., and recommendation by the State board of medical examiners. If not thus recommended, an examination must be passed. No person who is not a graduate of a legally chartered medical college in good standing shall be admitted to examination. Penalties are provided for illegal practice or assumption of the title of "Dr.," "Surgeon," "M.D." or "M.B."

Financial Value of Sanitary Improvements.—In his second inaugural address, April 10, the recently re-elected mayor of Chicago took occasion to point out the financial results, based on the money value of human life, which will accrue from the expenditure of a couple of million dollars in the construction of an intercepting sewer system, by which all sewage will be diverted from Lake Michigan, the city's water-supply, into the sanitary waterway of the drainage district. The first section of this work was completed last summer, at a cost of less than $200,000, and consists of the diversion of two main sewers from the lake into the south branch of the river. These drain a thickly-settled area of about 150,000 population, and, until the diversion was made, their foul drainage was emptied directly into the lake, affecting the sanitary quality of the water of the four-mile tunnel, which, from the distance of its intake from shore, should be the purest.

At the end of February last the health department tabulated the results of its daily examinations of the water of the four tunnels through which the public supply is drawn from the lake. These tabulations were made for two equal periods—one before, the other after, the sewer's diversion referred to, and they show that, before the diversion, the four-mile tunnel water was 13 per cent. inferior to the Lake View supply, taken two miles from shore; while since the diversion it has been 66 per cent. better than the Lake View, or a total improvement of nearly 80 per cent.—the four-mile supply now ranking, as it should do, the highest in sanitary quality. They show also an improvement of nearly 50 per cent. in the quality of the Chicago Avenue tunnel supply, which was likewise frequently affected by the discharge of these sewers.

The results upon the public health are seen in the following figures: Total deaths from the impure-water diseases, Jan. 1 to March 31, 1898, 540; for the corresponding period this year, 327—a saving of 213 lives in the first three months of 1899, as compared with the corresponding period before the sewer's diversion. At the value of human life fixed by the State Legislature, namely, $5000, this is a first instalment of $1,065,000 to be placed to the credit of the intercepting sewer system.

In this connection Mayor Harrison paid the following deserved tribute to the city health department:

"The tabulations and deductions indicate, among other things, the unceasing vigilance of the health department in all matters affecting the public health. In many respects it now stands among the very foremost of similar establishments in the world. It was the first to use the glycerinated vaccin, which has done more to popularize vaccination than anything in this connection since Jenner's day. Its work in the treatment of diphtheria, by which the mortality of the disease in this city has been reduced from more than 35 to less than 7 in every hundred cases treated by its medical inspectors; its investigations of the germ of influenza and the resulting improvement in the methods of dealing with this disease; and, still more recently, its identification of the organism of scarlet fever, which makes it possible that this scourge of the nursery shall be handled as successfully as diphtheria now is—are attracting the attention of sanitarians both in this country and abroad. They have been characterized by the highest authorities as 'remarkable,' 'brilliant,' 'nothing short of marvelous,' and the *British Medical Journal* has editorially commended to the attention of the local government board of London the 'sanitary machinery of Chicago in dealing not only with smallpox, but with diphtheria and other dangerous infectious diseases.

"Chicago has reason to be proud of its department of health."

The Health Reports.—The following cases of smallpox, yellow fever cholera and plague, have been reported to the Surgeon-General of the United States Marine-Hospital Service for the week ended April 6, 1898:

SMALLPOX—UNITED STATES.

Alabama: Mobile, March 24-26, 3 cases.

District of Columbia: Washington, March 31 to April 5, 6 cases.

Florida: Jacksonville, March 25 to April 1, 1 case: Key West, March 24-29, 3 cases.

Illinois: Chicago, March 24-31, 3 cases.

Louisiana: Alexandria, March 29, 9 cases; New Orleans, March 25 to April 1, 65 cases, 2 deaths.

Maryland: Baltimore, January 18 to April 1, 12 cases, 1 death.

Pennsylvania: Beaver County, March 12-30, 1 case; Bedford County, 1 case; Fayette County, 15 cases; Somerset County, 1 case.

Virginia: Alexandria, March 31 to April 2, 1 case; Newport News, March 27 to April 1, 20 cases; Norfolk, March 25-31, 33 cases; Portsmouth, March 25-31, 27 cases, 1 death.

Washington: Spokane, from first appearance to March 28, 4 deaths. Infection from Los Angeles, Cal.

SMALLPOX—FOREIGN.

Brazil, Bahia, March 4–11, 2 cases; Rio de Janeiro, February 17–24, 1 case, 1 death.
China: Hongkong, February 4–18, 5 cases, 2 deaths.
Korea: Seoul, February 25. Endemic. Many cases and many deaths.
Egypt: Cairo, February 8 to March 11, 3 deaths.
England: Liverpool, March 11–18, 1 case; London, 1 case.
France: Paris, March 11–18, 1 death.
Greece: Athens, March 11–18, 7 cases, 3 deaths.
India: Calcutta, February 18–25, 1 death; Madras, February 24 to March 3, 2 deaths.
Mexico, Mexico, March 19–26, 8 cases, 3 deaths.
Japan: Nagasaki, February 27 to March 6, 1 case.
Russia; Moscow, March 4–11, 18 cases, 2 deaths; Odessa, March 11–18, 3 cases; St. Petersburg, 5 cases, 1 death.
Turkey: Constantinople, February 27 to March 13, 29 deaths: Smyrna, February 26 to March 5, 1 death; Yambo, March 20, smallpox raging.

YELLOW FEVER.

Brazil: Bahia, March 4–11, 4 cases, 2 deaths; Rio de Janeiro, February 17–24, 65 cases, 41 deaths.
Mexico: Vera Cruz, March 23–30, 2 deaths.

CHOLERA.

India: Calcutta, February 18–25, 25 deaths.

PLAGUE.

India: Calcutta, February 18–25, 12 deaths.

Necrology.

ROBERT RUTHERFORD, M.D., health officer of Houston, Texas, died March 31, after a lingering illness. He was a native of Georgia and 65 years old.

H. F. Evans, M.D., Burlington, Iowa, died March 31. He was born in Manlius, N.Y., in 1830, was graduated from Hamilton College in 1850 and from the Castleton Medical School of Vermont in 1853.

D. W. BLAND, M.D., Pottsville, Pa., dropped dead at his residence, March 28. He was 66 years of age, and during the Civil War was surgeon with the Ninety-sixth Pennsylvania Vol. Inf., ranking as major.

GEORGE F. ENTLER, M.D., Jefferson, 1879, died at his home in Oneonta, N. Y., April 3, aged 49. For twenty-five years he had been surgeon for the Delaware and Hudson R'y.

WILLIAM NELSON, M.D., Danville, Va., died April 5 from blood poisoning following a surgical operation on a patient. He was a native of Hanover County, Va., and along with his brother figured in "The Two Little Confederates"—a story written by Thomas Nelson Page.

WRIGHT RIVES, M.D., Washington D.C., whose death was noted last week, was resident physician of the Garfield Memorial Hospital, and died at that institution on April 2, of pneumonia. The disease was contracted from exposure in connection with medical duties at the hospital. Dr. Rives was born in Maryland twenty-four years ago, and is a son of Col. Wright Rives, U.S.A., retired. He was a graduate from the Columbian Medical School.

ALFRED F. BENETEAU, M.D., Detroit, Mich., Detroit College of Medicine, 1895, dropped dead April 3 . . . F. H. Bloodworth, M.D., Savannah, Ga., March 28 . . . F. N. Chase, M.D., Kalamazoo, Mich., March 31, aged 80 years. . . . G. W. Enlow, M.D., Liberty, Ill., April 1, aged 48 years . . . Edward Frank, M.D., Chicago, April 5, aged 65 years . . . S. O. Gleason, M.D., Elmira, N. Y., April 4 . . . E. J. Martin, M.D., Gilmore City, Iowa, March 28, aged 42 years . . . Oliver P. Robinson, M.D., Janesville, Wis., March 30, aged 67 years . . . Henry A. M. Smith, M.D., Gloucester City, Pa., March 29, aged 59 years. . . . Emory Stansbury, M.D., Appleton, Wis., April 3, aged 70 years . . . S. A. Stone, M.D., Fairmont, W. Va., March 30, aged 49 years . . . Daniel J. Tittle, M.D., Pecatonica, Ill., April 7, aged 73 years.

Miscellany.

The Paris Exposition.—Paris will soon be the attraction for Americans, and parties are already being made up to visit the exposition to be held there next year. For the benefit of those who desire to make use of it, a "pension" is to be established where the recognized language will be straight American. It will be under the care of Prof. Arthur Wisner and his wife, who, though natives of France, have for some years been resident in New York. They have secured a mansion in the neighborhood of the Bois de Boulogne, and will have it fitted up as a comfortable home for their guests. The professor has already made arrangements for accommodating a number of prospective visitors, and he would be pleased to hear from others before he leaves for Paris, as he intends doing shortly. For the present he may be addressed at 605 Madison Ave., New York City.

Baltimore.

HEALTH REPORT.—The annual report of the Maryland State Board of Health has been published. The law now requires the registration of midwives and notification of infectious diseases throughout the State. The secretary urges the importance of at once beginning the fight against tuberculosis, by isolating consumptives in prisons, asylums and other public institutions. Tuberculous persons should be excluded from certain occupations. No consumptive should be employed as milker in a dairy. The School Board of Baltimore has already started the ball rolling by requiring all applicants for employment as teachers to furnish a certificate from a physician that they are free from tuberculosis. "One of the blesings disguised under the appalling sacrifice of human life in the military camps is the great popular awakening to the prominence of typhoid fever as a cause of untimely death in the United States."

COLLEGE OF PHYSICIANS AND SURGEONS.—Extensive improvements are to be made at this college, to cost $100,000. The contract has already been given and work will be commenced as soon as the session closes.

PUBLIC BATHS.—A movement is on foot, under the auspices of the State Health Association to raise a fund to be used for public baths and to do honor to the name of the late Dr. George H. Rohé by associating his name with it.

Saline Injection in Hemorrhage and Eclampsia.—Jardine, *Glasgow Med. Jour.*, March, advises the use of intercellular injection of saline solution (teaspoonful of salt to one pint of boiled water) into the cellular tissue in the axillæ or below the breasts. He reports this method of direct transfusion in veins as easier, requiring no cutting and leaving no wound, and avoiding the risk of introducing air into the circulation. Besides this, he holds that as the absorption takes place through the lymphatics, the fluid is in better condition to mix with the blood than when injected directly into the blood. He reports five cases of hemorrhage in which this method was employed with great advantage. In cases of great emergency, when instantaneous relief is demanded, it certainly can not do as well as instantaneous injection, the slowness of absorption, which the author admits, being against it. He also reports five cases of eclampsia in which it was used, in four of them apparently with advantage; the other was moribund when it was tried.

Washington, D. C.

CENTRAL DISPENSARY AND EMERGENCY HOSPITAL.—At the recent meeting of the attending staff, Dr. Burnett, chairman of the Liomel Laboratory, presented the following report: Since January 1, last, 82 examinations with the X-ray have been made, 49 for fractures, 15 locating bullets and 18 were for injuries or abnormal conditions. The X ray is used in all cases of fracture, in some cases at the time of the reduction, before a cast is put on, and in others one or two days after the setting to determine the position of the fragments. When amputation

is correct, the case is permitted to remain, but when defects in adjustments are noted, the bones are reset. This method has been followed in the treatment of fractures, with good results. All cases of doubtful fracture have been similarly examined. Bullets have been located in the head, thorax, abdomen, leg and arm accurately by the system of triangulation in vogue at the hospital and have been subsequently removed with little difficulty. He cited a case where a man shot through the breast near the nipple line, where perforation was supposed to have occurred, was saved from laparotomy by locating the bullet above the injury, buried in the muscles. A tin whistle was located in the cardiac opening of the stomach and removed by operation. A stone in the bladder was also located; extent of tubercular ostetitis determined before operation and a thoracic aneurysm looked for but not found. The skiagraph and X-ray are being used in connection with medical cases, and an interesting report is shortly looked for.

PHYSICIAN APPOINTED.—On the recommendation of Health Officer Woodward, the Commissioners have appointed Dr. Wm. B. French a special sanitary inspector to investigate the cause, pathology, etc., of cerebrospinal meningitis in the district.

PUBLIC HEALTH COMMITTEE.—A Committee on Public Health was appointed at the recent meeting of the Business Men's Association. The committee consists of thirteen members of the association.

HEALTH OF THE DISTRICT.—The report of Health Officer Woodward for the week ended April 1, shows the total number of deaths to have been 118, of which 67 were white and 51 colored. At the close of the last report there were 15 cases of smallpox, 29 of diphtheria and 78 of scarlet fever under treatment. During the past week there were 9 cases of cerebrospinal meningitis reported.

The Public Service.

Movements of Army Medical Officers under orders from the Adjutant-General's Office to April 6, 1899.

William Alden, acting asst.-surgeon, leave of absence granted.

Aaron H. Appel, major and surgeon, U. S. A., from Jackson Bks., New Orleans, La., to Galveston, Tex., for temporary duty connected with the mustering out of the 1st Tex. Vol. Inf.

Dallas Bache, colonel and assistant surgeon-general, U. S. A., member of a board in Washington, D. C., to examine persons designated for appointment as paymasters in the army.

William P. Banta, acting asst.-surgeon, from Washington, D. C., to New Orleans, La., to accompany Battery A, 6th U. S. Art., to Honolulu, H. I., and then proceed by the first government transport to Manila, P. I., for assignment.

Charles Norton Barney, acting asst.-surgeon, from Greenville, S. C., to San Francisco, Cal., for duty in the Department of California.

Thomas S. Bratton, lieutenant and asst.-surgeon, U. S. A., from Camp Graham, Tybee Island, Ga., to Savannah, Ga., for temporary service in connection with the mustering out of troops.

Charles A. Cattermole, acting asst.-surgeon, from Camp Columbia, Havana, Cuba, to Lansing, Mich., reporting thence by letter to the surgeon-general.

Paul Clendenin, major and chief surgeon, Vols., former orders discharging him from the volunteer service revoked; relieved from duty as chief surgeon 2nd Division, 7th Army Corps, to proceed to Santiago, Cuba, for assignment as commanding officer of the general hospital at that place.

Harold L. Coffin, acting asst.-surgeon, from Washington, D. C., to Jefferson Bks., Mo., to accompany Battery E., 1st U. S. Art., to Manila, P. I.

William Dolz, major and brigade surgeon, Vols., honorably discharged to take effect April 5, 1899.

C. M. Drake, acting asst.-surgeon, from Macon, Ga., to Jefferson Bks., Mo., to accompany Battery E., 1st U. S. Art., to Manila, P. I.

Alfred C. Girard, lieut.-col. and chief surgeon, Vols., former orders to Vancouver Bks., Wash., revoked; to report at San Francisco, Cal., for duty as commanding officer of the new general hospital of the Presidio of San Francisco.

Philip F. Harvey, major and surgeon, U. S. A., member of an examining board convened at St. Paul, Minn., vice Lieut.-Col. Henry R. Tilton, deputy surgeon-general, U. S. A., relieved.

Dean C. Howard, captain and asst.-surgeon, U. S. A., from New York City to Savannah, Ga., for duty connected with the mustering out of volunteer troops.

L. W. Hyde, acting asst.-surgeon, from Washington, D. C., to Hartford, Conn., on recruiting duty.

Cyrus D. Lloyd, acting asst.-surgeon, member of an examining board convened at Fort Leavenworth, Kans., vice Major George H. Torney, surgeon, U. S. A., relieved.

Sidney L. Meyers, acting asst.-surgeon, from Camp Columbia, Havana, Cuba, to Louisville, Ky., to report by letter to the surgeon-general.

Frederick Pearl, acting asst.-surgeon, from Boston, Mass., to San Francisco, Cal., for duty in the Department of California.

Elbert E. Person, acting asst.-surgeon, from Washington, D. C., to Governor's Island, N. Y., to accompany Batteries L and M, 6th U. S. A., to Manila, P. I.

Walter Reed, major and surgeon, U. S. A., member of a board in Washington, D. C., to examine persons designated for appointment as paymaster in the army.

George V. Sims, acting asst.-surgeon, former orders amended so as to direct him to accompany a battalion of the 6th U. S. A., to Honolulu, H. I.

H. Eugene Stafford, acting asst.-surgeon, from New York City to Governor's Island, N. Y., to accompany the 13th U. S. Inf., to Manila, P. I.

Ralph L. Taylor, acting asst.-surgeon, from duty in Pinar del Rio, Cuba, to report to the superintendent of the medical transport service, New York City for assignment.

Movements of Navy Medical Officers.—Changes in the medical corps of the U.S. Navy for the week ending April 8, 1899.

Surgeon J. R. Waggener, ordered to the "Glacier" for duty in connection with marine battalion, and on arrival at Manila ordered to duty in charge of the naval hospital, Cavite, P. I.

Surgeon J. D. Gatewood, detached from the Havana naval station and ordered home to wait orders.

Surgeon L. B. Baldwin, ordered to the Key West naval station.

Asst.-Surgeon R. O. Marcour, detached from the Key West naval station and ordered to the Havana naval station.

Medical Director G. A. Bright, detached from the naval hospital, Washington, D. C., April 8, and ordered home to wait orders.

Medical Inspector D. Dickinson, ordered to the Washington navy yard, April 8, for duty at naval hospital temporarily.

Medical Inspector R. C. Persons, detached from the naval hospital, Cavite, P. I., and ordered to the "Olympia."

Medical Inspector A. F. Price, detached from the "Olympia" and ordered home to wait orders.

Asst.-Surgeon H. D. Averill, discharged April 5.

Marine-Hospital Changes.—Official List of Changes of Stations and Duties of Commissioned and Non-Commissioned Officers of the U.S. Marine-Hospital Service, for the fourteen days ended April 6, 1899.

Surgeon John Godfrey, bureau order of March 21, 1899, directing him to proceed to Port Huron, Mich., for special duty, revoked.

Surgeon C. E. Banks, detailed as inspector of unserviceable property in the hygienic laboratory, Washington, D. C.

Surgeon C. T. Peckham, to proceed to New Orleans, La., for special temporary duty.

Surgeon J. H. White, relieved from duty at the immigration bureau, New York City, and directed to report at Washington, D. C., for duty.

P. A. Surgeon W. P. McIntosh, relieved from duty in hygienic laboratory, Washington, D. C., and upon completion of duties as recorder of the board of examiners at New York City, to rejoin station at Louisville, Ky.

P. A. Surgeon G. M. Magruder, to proceed without delay to Port Tampa, Fla., and await orders.

P. A. Surgeon C. P. Wertenbaker, to report at bureau for special duty.

P. A. Surgeon J. A. Nydegger, to proceed to Wilmington, N. C., for special temporary duty.

Asst. Surgeon A. R. Thomas, upon completion of examination to determine fitness for promotion, to proceed to the Tortugas quarantine station and assume command of Service.

Asst.-Surgeon H. S. Cumming, upon completion of examination to determine fitness for promotion, to proceed to the Cape Charles quarantine, and report to the medical officer in command for duty.

Asst.-Surgeon R. H. von Ezdorf, to inspect unserviceable property at the South Atlantic quarantine station.

Asst.-Surgeon J. F. Anderson, granted leave of absence for thirty days on account of sickness.

Asst.-Surgeon G. M. Corput, to proceed to Mullet Key, Fla., for special temporary duty.

Sanitary Inspector D. E. Dudley, to report to medical officer in temporary charge of the Tortugas quarantine station for special temporary duty.

Hospital Steward E. B. Scott, to proceed to Savannah, Ga., for special temporary duty.

PROMOTION.

P. A. Surgeon L. L. Williams, commissioned as surgeon March 30, 1899.

APPOINTMENT.

S. C. de Krafft, reappointed acting asst.-surgeon M.-H. S., for duty at the port of Cambridge, Md., April 1, 1899.

APPOINTMENT REVOKED.

Department letter of March 11, 1899, appointing Oliver Stewart acting asst.-surgeon at Port Huron, Mich., revoked April 4, 1899.

RESIGNATION.

Acting Asst.-Surgeon Myron Northrup, resigned to take effect March 31, 1899.

CHANGE OF ADDRESS.

Andrews, W. F., from 1959 3rd St. N. W. to The Victoria, Washington, D. C.
Batten, J. M., from Pittsburg to Dowmington, Pa.
Ballenger, W. E., from Nashville, Tenn. to Rove, Ark.
Burns, C. S., from Nashville, Tenn. to Harrison, Ark.
Burns, S. L., from Nashville, Tenn. to Harrison, Ark.
Campbell, A. L. D., from Chicago, Ill. to Piqua, Ohio.
Campbell, from Willow Springs to Wood Will, So. Dak.
Faulds, R. C., from Pound to Swing, Wis.
Freeman, C., from 602 Broad to 1227 Ellis St., Augusta, Ga.
Fausett, G. R. C., from Olmsted Falls to Geneva, Ohio.
Hughes, L., from St. Louis, Mo. to Jabez, Ky.
Kimble, Z. E., from Liberty, Pa. to Williamsport, Pa.
Kinne, E., from Gayton to Lock Box 50, Elkhorn, Wis.
Kreissl, F., from Schiller to Stewart Bldg., Chicago, Ill.
Lofton, L., from Emporia to 230 Park Ave., Norfolk, Va.
Lagerstrom, F. G., from Topeka to Randolph, Kans.
Little, W. J., from Madison to Shelton, Neb.
Moody, H. A., from Mobile to Bailey Springs, Ala.
Newhall, M. N., from Minneapolis to Markville, Tenn.
Orth, W. S., from 383 Wells to 573 Orchard St., Chicago.
Pendergrass, W. C., from Nashville, Tenn. to Visolia, Calif.
Parsons, S. T., from Chicago, Ill. to Breda, Ia.
Stewart, R. A., from Olathe to Dorrance, Kans.
Stone, R. E., from Nashville, Tenn. to 171 Bird Ave., Buffalo, N. Y.
Shannon, L. W., from 611 Congress to 715 Harrison St., Chicago.
Strohecker, S. M., from 692 Adams to 168 Dearborn Ave., Chicago.
Volding, M. N., from 1221 Capitol Ave. to 226 K. P. Blk. Des Moines, Ia.
Woodruff, T. A., from 100 State to 103 Adams St., Chicago.
Wright, H. J., from Des Moines to Marshalltown, Ia.